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ADDRESSES AND ORIGINAL ARTICLES

TRAUMA AND PROGRESSIVE MUSCULAR ATROPHY

By J. W. Aldren Turner, B.M. Oxfd, M.R.C.P.
RESIDENT MEDICAL OFFICER AT THE NATIONAL HOSPITAL, QUEEN SQUARE, LONDON

THE part played by trauma in the initiation of progressive generalised nervous diseases becomes occasionally subject to dispute in relation to workmen's compensation. In view of the lack of data derived from any notable series of cases, it seems worth while to analyse a series of cases of progressive muscular atrophy to find out in what proportion a history of trauma is obtained. The term progressive muscular atrophy has been taken to include amyotrophic lateral sclerosis and progressive bulbar palsy with muscular atrophy.

For this purpose a series of 100 consecutive cases of progressive muscular atrophy treated in the National Hospital between 1932 and 1937 has been selected. The following criteria were adopted for the diagnosis:—

(1) Signs of progressive degeneration of the bulbar nuclei associated with generalised muscular atrophy and fibrillation either with or without evidence of involvement of the pyramidal tracts (37 cases).
(2) Progressive muscular wasting associated with evidence of involvement of the pyramidal tract (40 cases).
(3) Widespread muscular wasting and fibrillation of the classical type of progressive muscular atrophy without involvement of the pyramidal tract (19 cases). There was no sensory impairment in any of the cases in these groups.
(4) Post-mortem confirmation of the diagnosis. The pathological changes taken as confirmatory were degeneration of the anterior-horn cells, diffuse degeneration of the anterolateral tracts with the pyramidal tracts most affected, and degenerative changes in the Betz cells of the precentral convolution (4 cases).

Especial care has been taken to exclude cases such as those described by Walshe and Ross (1936), in which rather a similar condition has been caused by a local lesion in the cervical cord following an injury to the head. The main features of these cases distinguishing them from progressive muscular atrophy are the inversion of the radial reflexes and pain on movement of the neck.

Of the 100 patients 66 were males and 34 females, in the following age-groups: twenty–thirty, 4; thirty–forty, 11; forty–fifty, 30; fifty–sixty, 39; and sixty–seventy, 16. In 79 cases no history of trauma was obtained, whereas in the other 21 there was a history of trauma. The relation of trauma to the onset of nervous symptoms seemed to fall into two categories: trauma more than a year before the first symptom was noticed, and trauma within a year. In the first group there were 15 cases, the trauma usually being many years before and varying greatly in severity, but usually being a fracture or a wound of a limb. In the second group there were 6 cases, in 1 of which the trauma was merely a sprained ankle; of the other 5 more detailed clinical notes will be given.

As a control a second series of cases was analysed. These were 100 cases of the same age-groups and sex-groups suffering from various organic diseases of the nervous system in which trauma is not thought to play an ætiological part. In this series a history of trauma was obtained in 22 cases, the injury being more than a year before the first symptom was noticed in 20 cases. In the remaining 2 cases a slight trauma preceded by a few months the first symptom of a cerebral tumour in one case and of a spinal tumour in the other.

TABLE I—INCIDENCE OF TRAUMA

—	No trauma	Trauma		
		Under 1 year	Over 1 year	Total
P.M.A. group (per cent.)	79	6	15	21
Control group (per cent.)	78	2	20	22

Table I shows the relative frequency of trauma in the history of 100 consecutive cases of progressive muscular atrophy and of 100 cases of other nervous diseases as a control. It will be observed that in both the progressive muscular atrophy and the control series the total number of cases with a history of trauma was practically identical, and that it was only when an arbitrary period of a year was taken that a small difference of 4 per cent. in favour of the progressive muscular atrophy group was apparent.

CASE-RECORDS

A few details will now be given of the 5 cases in which there was an injury within twelve months of the first symptoms. They are summarised in table II.

TABLE II—TYPE OF INJURY AND INTERVAL BEFORE DEVELOPMENT OF SYMPTOMS

Case	Trauma	Part first affected	Interval between trauma and first symptoms
1	Fall on to right shoulder	Right shoulder	1–2 weeks
2	Frostbite of left hand	Left hand	About 1 week
3	Two cerebral injuries	Right arm and leg	Nine months after first injury and immediately after second injury
4	Injury to right knee, causing synovitis	Right leg	One month
5	Crushing injury to left hand	Left hand	Twelve months

CASE 1.—A male, aged 53, admitted on March 31, 1937, under the care of Dr. George Riddoch. Eight months before admission, when mounting his bicycle, he caught his foot in the pedal and pitched forward on to his right shoulder tip. The right arm was painful and stiff and remained so for several days. Then, as the pain wore off, he noticed that the right arm was weak at the shoulder, and about a fortnight later the elbow was weak, and in the course of the next two months the weakness increased and involved the whole arm. A month after the injury he noticed flickering in the muscles of the right hand, which seemed to be thinner. Rapidly the weakness spread to all four limbs, and two months before admission he became unable to walk and his voice became feeble.

On examination his voice was feeble, but articulation was normal, and there was no fibrillation of the tongue. There was wasting of all the muscles of both arms with fibrillation in the pectoral muscles. He had no power in the upper limbs beyond weak adduction of the arms and flexion of the wrists and fingers. There was gross wasting of all the leg muscles

with practically no voluntary power. All the tendon-jerks were very weak or absent, and the abdominal reflexes were absent and the plantar reflexes flexor.

He died of bronchopneumonia a few days after admission. Necropsy showed the typical degeneration of the anterior-horn cells, especially in the cervical and lumbar enlargements, and somewhat diffuse degeneration of the anterolateral columns, with special incidence on the pyramidal tracts.

This was a rapidly developing progressive muscular atrophy with post-mortem confirmation of the diagnosis. The injury which preceded the onset of symptoms by a month is most unlikely to have been due to pre-existing disease, for his fall resulted from catching his foot in the pedal of his bicycle, and weakness of the legs was not complained of till some months later, the first signs of disease appearing in the arms.

CASE 2.—A male, aged 47, admitted on April 3, 1935, under the care of Dr. E. A. Carmichael. In March, 1934, thirteen months before admission, he was handling some frozen cable, when his left hand became frostbitten; this consisted of swelling of the hand, which persisted for two or three days. When the swelling wore off, he found that the left hand was weak. Slowly the weakness spread to the rest of the arm, which became stiff. Five months later he began to speak through his nose, and swallowing became difficult. Four months after the onset of bulbar symptoms his right grip became weak and his legs became weak and stiff.

On examination there was impairment of emotional control, and he had a slurring nasal dysarthria and slight weakness of the orbicularis oculi and oris muscles. There was wasting and fibrillation of the tongue. There was wasting, weakness, and fibrillation in the arms, more noticeable on the left. The legs were slightly spastic, and there was fibrillation in the quadriceps muscles. The tendon-jerks were increased, the abdominal reflexes present, and the plantar reflexes extensor. There was no sensory loss. The cerebrospinal fluid was normal.

This was a typical amyotrophic lateral sclerosis with bulbar palsy. It is conceivable in this case that the frostbite of the left hand was due to clumsiness of movement of the hand, resulting from pre-existing disease, but it is impossible to be sure on this point.

CASE 3.—A male, aged 46, admitted on July 10, 1934, under the care of Dr. Hinds Howell. Eighteen months before admission he fell down sixteen stone steps and was unconscious for half an hour; immediately afterwards he had an aching pain in the right shoulder and hip, some tremor of the right leg, severe weakness of the right arm and leg, and retention of urine for a week after the accident. The power in the arm and leg gradually returned, but the pains persisted.

Nine months later he was involved in a car smash and was unconscious for five minutes. The next morning his right arm and leg were very weak and he could not walk. Since then he has not been able to walk without support and he has noticed slight weakness of the left arm and pain in the left shoulder.

On examination nine months after this second injury he was found to have increased tone in both arms, wasting of the first dorsal interosseous muscle in both hands, and fibrillation in both deltoid, biceps, and triceps muscles. Both legs were spastic, and there was fibrillation in the calf muscles. There was definite weakness of all movements of arms and legs, the right side being the weaker. All the tendon-reflexes were increased, the abdominal reflexes absent, and the plantars extensor. There was no sensory loss. The cerebrospinal fluid and radiograms of the spine were normal.

This man presented a typical picture of amyotrophic lateral sclerosis with no evidence of a local lesion in the spinal cord. It appears likely that there was cerebral damage from each of the preceding injuries, for there was transient loss of consciousness and weakness of hemiplegic distribution on the right side. In this respect this case differs from the others, in which the injuries were to a limb. The question of the injuries being due to pre-existing disease of the limbs does not seem to arise in this case.

CASE 4.—A male, aged 42, admitted on July 10, 1935, under the care of Dr. Kinnier Wilson. In July, 1933, two years before admission, he tripped over a wooden post, which was lying on the ground, and he went sprawling into the road. He had severe pain in the right knee, but he was able to continue his round as a milkman. A few hours later the right knee became swollen and very painful, and the swelling took seven to ten days to subside. He was off work for a month.

A month later, when walking, he found that his right foot was dragging, and the leg felt weak. The next day it felt normal again, but about two months afterwards the right leg again felt weak, and he dragged it when he walked, and since then the weakness has gradually increased. A few weeks later the left leg began to feel weak, and he became conscious of fibrillation in both thighs and occasionally in the arms. The weakness of the legs was steadily progressive.

In July, 1935, on examination the cranial nerves and arms were normal. There was ¾ in. wasting of the right calf, and there was fibrillation in both calves. Both legs were spastic, and there was generalised weakness of the legs, greater on the right. The tendon-jerks of the arms and legs were exaggerated, the abdominal reflexes present, and the plantars extensor. There was no sensory loss. The cerebrospinal fluid was normal.

This was a gradually progressive amyotrophic lateral sclerosis with the lower limbs more involved than the upper. An injury to the right leg causing synovitis of the knee preceded the onset of slight weakness of this leg by about a month. No weakness of the legs of any kind had been noticed before he tripped over the wooden post.

CASE 5.—A female, aged 61, admitted on March 17, 1936, under the care of Dr. Hinds Howell. Early in 1931 the inner three fingers of her left hand were crushed by machinery, the fingers swelled, and the nails dropped off. Three weeks later she returned to work, but she could not use the left hand. The hand gradually became normal, and after a few weeks she could use it normally. A year later, in 1932, she found that she could not move her left hand as quickly as she could before, and the fingers began to be drawn up into the palm. During the next two years the left hand gradually became thinner and weaker.

Eighteen months before admission she fell and fractured her left wrist, and six months later she again fell and broke her left upper arm. During the last nine months both her arms and legs have gradually become weaker, so that on admission she could not walk.

On examination about five and a half years after the original injury the cranial nerves were normal. There was considerable wasting of the left hand and moderate wasting of the left deltoid, spinati, and forearm muscles, with complete loss of power in the left hand and weakness of the movements of the left arm and the right wrist and hand. No fibrillation was seen. Both legs were slightly spastic, and there was weakness of flexion of the thighs. The tendon-jerks were reduced in the left arm and normal in the right arm, the knee-jerks increased, and the ankle-jerks normal. Abdominal reflexes were absent and plantars indefinite. There was no sensory loss. The cerebrospinal fluid was normal.

This was a slowly developing progressive muscular atrophy, with only slight signs of involvement of the pyramidal tract. The fact that the weakness of the left hand, which followed the injury, cleared up

completely in a few weeks, and that there was then an interval of several months before progressive weakness and wasting of the hand developed, disposes of any suggestion that the accident was due to pre-existing disease.

DISCUSSION

Trauma has from time to time been suggested as a possible cause of progressive muscular atrophy. Of the older authors, Gowers (1892) accepted it, saying that concussion of the spine rather than injury of a limb was more likely to cause it; and Bailey (1908), who reviewed the whole subject of injury and nervous disease, said: "The causal relationship of trauma to progressive muscular atrophy is fairly well established. A considerable number of cases are on record in which an injury of a limb was quickly followed by an atrophy of its muscles, a condition which later became generalised."

More recently Harris (1933) has been the chief exponent of the view that trauma may play some part in the ætiology, and he quoted the case of a man who shortly after a 500 lb. case had fallen on to his right foot developed muscular atrophy of the right foot and leg, which later became generalised and was accompanied by widespread fibrillation. Harris said: "Grave injustice is often done by the refusal of consultants to allow the possibility of cause and effect in progressive nervous disease following severe blows upon the head or spine." At a recent discussion at the Royal Society of Medicine (1938) several speakers agreed with this point of view.

Of those opposed to this view Kinnier Wilson (1923) is the most dogmatic, summing up with the words "I am unable to understand how a single trauma can cause a progressive neural degeneration or abiotrophy." Pollock (1937) in a recent review says that he thinks that the causal relationship of trauma and progressive muscular atrophy is most unlikely. Alajouanine, Gopcevitch, and Meillaud (1930), in an account of the types of muscular atrophy which may follow trauma, do not mention progressive muscular atrophy, discussing only localised atrophy, hæmatomyelia, and myopathy.

The fullest account of the subject is by Jelliffe (1935), who collected all the cases reported up to that date, without giving any opinion on them. Of his cases 42 can probably be accepted as instances of true progressive muscular atrophy, and the most significant fact is that the injury was inflicted within a year of the first symptom in 40 of the cases. Since then only 3 cases have been reported. In one of these atrophy confined to the right arm, but with more extensive fibrillation, was noted 42 years after an injury to the left side of the head (Sutton 1938), and of the others (Geyer 1934) one started within a year of the injury and the other was rather an anomalous case with acute poliomyelitis as well as trauma in the history.

The evidence derived from the present inquiry shows that in the great majority of cases there is no question of trauma in the ætiology of progressive muscular atrophy; and, when the control series of cases is considered, it is obvious that an injury several years before the first symptoms appear can also be discounted as a causal factor. The only difference in the incidence in the two series of cases appears when trauma inflicted within a year of the first symptom is considered. Even here the difference is only 4 per cent., and clearly so small a difference as this might arise by chance and cannot be considered as statistically significant. From these figures it must be concluded that trauma can play no primary part in the ætiology of progressive muscular atrophy.

In the 5 case-records quoted, however, an injury preceded by a short interval the first symptoms, and in 4 of these cases the injured limb was the first part of the body to be affected. An objection commonly raised in cases of this sort is that the injury was really the result of the disease and served to draw attention to the symptoms, and it is often a matter of considerable difficulty to be sure about this point. I have considered this in the comments on each case, and real doubt about pre-existing disease is only present in case 2. These cases suggest that trauma, though not the cause of progressive muscular atrophy, may in a very small minority of cases act as a precipitating factor in the development of the disease, and that, when this happens, the first signs are likely to appear in the limb which has been injured.

SUMMARY

(1) An analysis has been made of 100 cases of progressive muscular atrophy and of a control group of 100 cases of other organic nervous diseases with regard to trauma as a possible ætiological factor.

(2) In 5 of the cases of progressive muscular atrophy there was a history of injury within a year of the first symptom, and in 3 of these the injury was within a month of it. Details of these cases are given.

(3) It is concluded that trauma plays no primary part in the causation of the disease, but in a very small minority of cases it seems to precipitate the appearance of symptoms.

My thanks are due to the medical committee of the National Hospital, Queen Square, for permission to report these cases, and to Dr. D. E. Denny-Brown for help in the preparation of the paper.

REFERENCES

Alajouanine, T., Gopcevitch, M., and Meillaud, P. (1930) *Rev. neurol.* **1**, 429.
Bailey, P. (1908) Diseases of the Nervous System Resulting from Accident and Injury, London.
Geyer, H. (1934) *Dtsch. Z. Nervenheilk.* **134**, 14.
Gowers, W. (1892) A Manual of Diseases of the Nervous System, 2nd ed. London, vol. i, p. 473.
Harris, W. (1933) *Brit. med. J.* **2**, 955.
Jelliffe, S. E. (1935) *J. nerv. ment. Dis.* **82**, 415.
Pollock, L. J. (1937) Trauma and Disease, London, p. 322.
Royal Society of Medicine (1938) *Proc. R. Soc. Med.* (Sect. Neurol.), **31**, 585.
Sutton, G. E. F. (1938) *Brit. med. J.* **1**, 225.
Walshe, F. M. R., and Ross, J. (1936) *Brain*, **59**, 278.
Wilson, S. A. K. (1923) *J. Amer. med. Ass.* **81**, 2172.

". . . People of this constitution may be said to live perpetually in a state of hate, for so long as aggressiveness is thwarted, *i.e.*, so long as the position falls short of absolute power, hatred will be favoured constantly, even where no object for the hatred existing can well be found. . . . In those rare instances where the external resistance is overcome, where absolute power is attained and day-dreams achieved, the hatred will persist as a habit and find still more vague and more remote objects; but it will tend gradually to be supplanted as the prevailing emotion, by fear. For we all picture the world in terms of our own mentality; and an aggressive person peoples his environment with similarly aggressive people, so that the fear of those around him is in direct proportion to the quantity of his own aggressiveness. Where the external resistance is real, it can be calculated and so the fear is limited; but when it has been overcome, the habit of fear remains, like the habit of hate; and the hate and the fear become all the greater because their objects are now diffuse and incalculable. Fear of the unknown as everyone knows is greater than fear of the known; thus the price of absolute dominion is a state of heightened vindictiveness and fear."—Dr. R. D. GILLESPIE, The Psychology of Dictatorship, *Catholic Medical Guardian*, July, 1939, p. 12.

TREATMENT OF FRACTURES BY LOCAL ANÆSTHESIA

By H. Cullumbine, M.B., M.Sc. Sheff.

CLINICAL ASSISTANT IN THE ORTHOPÆDIC DEPARTMENT AT THE DEWSBURY AND DISTRICT GENERAL INFIRMARY

Leriche (1928, 1936), Fontaine (1936), and Campbell (1938a and b) have described the use of local anæsthesia in the treatment of fractures. This paper records the results of 100 consecutive cases of "minor" fractures treated by their methods. By the term "minor" fracture I mean a fracture in which there is no displacement and no possibility of displacement during the normal functional activity of the part in question. Every incomplete fracture has, therefore, been thus treated. In addition, however, complete fractures in certain situations—e.g., internal and external malleoli, phalanges, and base of the fifth metatarsal—have been included.

Too often, in the past, fractures have been treated by routine methods which took into account only the site and not the degree of the injury. In the enthusiasm to adopt Böhler's methods his basic principle of "functional activity during treatment" has been forgotten. Böhler reasoned that the more the injured limb was used, the quicker and the better was the callus formed, and muscular atrophy and stiffness were reduced to a minimum. How much better, then, that the fractured bone should be used throughout its normal range of movement, unrestricted by splints or plaster.

METHOD

After thorough sterilisation of the skin, a 2 per cent. solution of procaine is injected into the hæmatoma between and around the fractured ends of the bone. The affected area is massaged to ensure the thorough dissemination of the procaine. The patient is then told to use his limb throughout its full range of movement. Supporting strapping is only used when there is excessive œdema in fractures of the ankle and in "second"-degree fractures of the ankle. The amount of procaine used varies with the site of injection—e.g., 5–10 c.cm. around the ankle, 2–3 c.cm. in fractures of metatarsal and metacarpal bones, and 0·5–1 c.cm. in fractures of phalanges.

RESULTS

The following types of fracture were thus treated:—

Ankle fractures.—Of 33 fractures of the ankle 20 involved the external malleolus, 5 the internal malleolus (in 8 of these 25 the opposite lateral ligament was also involved), 4 the internal and external malleolus, and 2 the posterior malleolus. The remaining 2 were trimalleolar.

Campbell (1938a and b) confined his treatment to "first-degree" fractures of the ankle—i.e., fractures of one malleolus only. Here the scope has been extended to "second-degree" fractures—i.e., fractures of both malleoli or fracture of one malleolus with involvement of the opposite lateral ligament of the ankle. In these cases the tender area on each side of the joint was injected. These "second-degree" fractures are, however, strapped for two weeks after the injection, because in these cases the ankle-joint is unstable. Similar treatment was given to 2 cases of trimalleolar fracture—i.e., fracture of the internal and external malleoli with fracture of the posterior articular surface of the tibia.

Of the 33 cases of fracture of the ankle thus treated only 4 needed a further injection because of subsequent pain. No case needed more than two injections. All the patients were made to walk immediately after the injection. Their confidence being thus gained, they were told to continue active movement throughout the treatment. Subsequent radiographic control at the end of six weeks seems to suggest that more callus was formed than with the usual methods of immobilisation.

The old bugbear of "stiff ankle," so often seen in the treatment with plaster, was non-existent. The length of treatment was reduced, for every one of the 33 patients had resumed normal working activity within six weeks of injection—most in much less time, and one, on his own initiative, within three weeks. It would be wrong to say that the full range of movement was obtained in all cases immediately after injection. In those with little evidence of local trauma to the tissues—i.e., without œdema or bruising of the soft parts—this was possible; but in those with considerable œdema or much extravasation some awkwardness of gait and stiffness of movement could be expected for the first seven to ten days.

Metatarsals.—Of 13 fractures 9 involved the fifth metatarsal, 2 the fourth, and 2 the second. These were injected from the dorsum of the foot. Of the 9 fractures of the fifth metatarsal 6 were complete. The fractures of the fourth and second metatarsals were incomplete. Of the 13 patients 12 were back at their normal work within three weeks; the thirteenth needed a second injection a week after the first and was off work for five weeks. No deformity—e.g., flat-foot—has yet developed in any of the cases. Complete fractures of bones other than the fifth metatarsal have not been injected, because of the danger of such deformity if no supporting splint were applied.

Phalanges.—Of 27 fractures 16 involved fingers and 11 toes. Of these 27 fractures 7 were complete, and crepitus could be elicited. Perhaps the close binding of the soft tissues round the bones of the phalanges prevents any gross displacement during normal movement, despite the tendency to anterior angulation from the action of the lumbricals and the interossei muscles or of the long flexor tendons. Whatever the explanation, normal union in good position was obtained in all cases. In complete fractures each side of the phalanx was injected.

Metacarpals.—There were 2 cases, 1 involving the second and third metacarpals and 1 the second metacarpal. These were incomplete fractures, and both patients were back at work within three weeks. Complete fractures could not be so treated, because of the danger of displacement by the interossei muscles.

Ribs.—Cracked ribs (8 cases) were injected over the point of maximal tenderness. There was no subsequent pain, and complete union resulted in all cases.

Coccyx.—There were 2 cases, without displacement, and no pain or disability resulted after treatment.

Fibula.—There were 7 fractures of the head or shaft. All the patients resumed work immediately, and full union was obtained.

Spinous processes.—There were 2 cases, and both patients resumed work immediately. Here the close ligamentous and muscular attachment would prevent any possibility of displacement.

Great trochanter of the femur.—There were 2 cases, both incomplete cracks with pain on walking. All pain and disability vanished immediately after injection.

Cuneiform bone.—There were 2 fractures of the first cuneiform. Both patients returned to work immediately.

Os calcis.—There were 2 cases of incomplete crack across the body of the os calcis. The severe pain, which had prevented the patients from putting their heels to the floor, disappeared immediately after injection. They were at work again in two weeks with no subsequent disability.

COMMENTS

These results of the treatment of 100 consecutive cases of "minor" fracture seem to justify a more widespread use of local anæsthesia in the treatment of fractures. Not only are the pain and the disability quickly relieved, but also a more rapid return to normal functional activity is achieved.

It may be reasoned that there is always a danger of displacement. This has not happened in any of these cases. Moreover, it should be borne in mind that, besides their normal kinetic activity, the muscles of the body have a postural function which helps to bind and keep the bones in their definite form.

There is also an important psychological factor to be considered in the treatment outlined. To the normal lay patient a fractured limb is a limb that should not be used. He views with great suspicion any efforts to persuade him to the contrary. For example, a patient with a fractured ankle, after injection, puts his foot to the ground with great trepidation. When told to walk he does so with a stiff ankle and a stiff knee. We have usually, therefore, to spend ten minutes re-educating the patient in the difficult art of walking.

In about a third of the cases "after-pains" (Leriche occurred about twenty-four hours after the injection. They usually lasted for about twenty-four hours and then disappeared altogether. These "after-pains" were, in many cases, more severe than the original pain, and so, as a routine, we now warn the patient that they may follow. Further, although all pain has disappeared, it is usually possible to elicit some tenderness over the site of the fracture for 10–14 days after the injection.

SPRAINS

It may also be of interest that, during the period covered by the above cases, I treated 30 cases of "sprain" by the same method. The results are summarised below:—

Supraspinatus tendinitis.—In 5 cases 10 c.cm. of a 2 per cent. solution of procaine was injected over the point of maximal tenderness—i.e., the great tuberosity of the humerus. The average period of disability was six days.

Sprains round the ankle.—In 11 cases 10 c.cm. of a 2 per cent. solution of procaine was injected into the point of maximal tenderness. The period "off work" varied from seven to seventeen days. One patient was hurt playing rugby on a Saturday. He was injected on the following Monday and played again without any ill effects the following Saturday.

Sprains round the knee.—In 14 cases 5–10 c.cm. of a 2 per cent. solution of procaine was injected into the painful area. The period "off work" varied from ten to twenty-one days.

SUMMARY

The results of treatment of 100 consecutive cases of minor fracture by local anæsthesia are reported. Pain and disability were quickly relieved, and normal function returned more rapidly than it does with other treatment. No displacement followed. In about a third of the cases there were "after-pains" some twenty-four hours after the injection of procaine. Although all pain disappeared, it was usually possible to elicit tenderness over the site of fracture for 10–14 days after the injection.

Local anæsthesia was also used successfully in the treatment of 30 cases of sprain.

I am indebted to Mr. A. B. Pain, honorary orthopædic surgeon to the Dewsbury and District General Infirmary, for permission to publish the above results.

REFERENCES

Campbell, W. G. (1938a) *J. R. nav. med. Serv.* **24**, 48.
— (1938b) *Lancet*, **2**, 872.
Fontaine, R. (1936) *Rev. Chir., Paris*, **74**, 761.
Leriche, R. (1928) *Gaz. Hôp., Paris*, Sept. 1st.
— (1936) *Pr. méd.* **44**, 99.

URETHRAL OBSTRUCTION FOLLOWING PROSTATECTOMY

By Stephen Power, M.S. Lond., F.R.C.S.

CONSULTING SURGEON TO THE ELTHAM HOSPITAL; ASSISTANT SURGEON TO THE LONDON HOMŒOPATHIC HOSPITAL

Obstruction following prostatectomy is a complication which has received a good deal of attention in the past, but I am not sure that its ætiology has excited as much interest as its prophylaxis. The mechanism of the obstruction seems to have been taken for granted, and certain facts in regard to it have not been given their full significance.

Thomson-Walker's name is outstandingly associated with this complication of prostatectomy; indeed the operation which he designed and practised was expressly planned to forestall it. He published a long series of cases in 1927 and an even longer in 1930 (the latter including the former). The second of these amounted to 75, but included examples of recurrent obstruction from such things as tags, adenomatous nodules which had been overlooked, and adenomatous nodules which had re-formed. For the purpose of the present argument these cases can be disregarded; anyway they represent only a small fraction of the whole series. The cases that concern us are those of true narrowing of the bladder outlet, and it is obvious at once on looking at the list that these can be divided into cases of narrowing at the internal meatus and cases of narrowing in the prostatic bed. The striking thing about this combined group is that the first are far more numerous than the second, the proportions being somewhat as follows: meatal narrowing 85 per cent. and prostatic-bed narrowing 4·3 per cent. In 7 cases the outlet was completely obliterated and there were false passages behind it. There was a permanent fistula in 43 per cent., and the remainder complained of frequency, dysuria, and recurrent attacks of retention. Usually the trouble had begun during convalescence from the prostatectomy.

In 39 cases the type of prostate removed was ascertained. Of these 17 were fibrous, 3 contained calculi, and 19 were adenomatous; no distinction is made in the last group between the intravesical and subvesical types of enlargement. Thomson-Walker remarks that the technique employed was always "blind." The causes which he gives as partly responsible are incomplete removal and sepsis. He was dubious about the Harris technique as a possible solution of the problem. None of the

cases appear to have been in the first place his own, and he apparently considered his own operation immune from this complication.

As to treatment, he counselled urethral dilatation if possible but found very often that the hardness of the fibrous tissue made it difficult, dangerous, and unsatisfactory. In particular he was afraid of creating false passages through the trigone, because he realised that the meatus was as a rule drawn well forwards; to avoid this he advised that the point of any instrument should be kept well forward under the pubic arch until it had entered the bladder.

Thomson-Walker's prostatectomy was deliberately planned to obviate any subsequent narrowing, and the method adopted was the excision of a wedge from the shelf which bounds the meatus posteriorly after the gland has been shelled out. This amounted to a division of the sphincter vesicæ, although this aspect of the matter was not emphasised. Faced with a postoperative meatal narrowing he carried out practically the same procedure, which he had proved to be such a useful adjunct to an ordinary prostatectomy. Always at operation he was impressed by the absence of any fibrosis in the anterior segment of the bladder neck as contrasted with the hard and thickened ridge posteriorly. He used a catheter as a routine both after prostatectomy and after restoration of the urethra.

Riches and Muir in 1933 investigated the possibility of anticipating from the nature of the enlarged prostate what the results of its removal might be. For this purpose they divided their prostates (114 cases) into glandular, intermediate, fibrous, and calculous types; unfortunately the first two groups were far larger than the second two. Results were classified as good, bad, or indifferent. The bad results were mainly attributable to sepsis and stenosis at the internal meatus. Stenosis was found far more commonly in the fibrous and calculous types than in the others. It is clear, however, that a distinction was not made between stenosis at the internal meatus and stenosis in the prostatic bed, for the authors say that the complication may be considered "an inevitable result of the impossibility of removing all the fibrous tissue which commonly extends throughout the prostatic urethra in the fibrous type and the impossibility of taking away all the gland in the calculous type." This shows that at least in some cases the stenosis was not at the internal meatus.

Emmett (1937) throws some sidelights on this question of postoperative stenosis in an account of diathermy resection carried out for persistent or recurrent symptoms after prostatectomy. Causes he lists as infection, scarring, incomplete removal, and carcinoma, and he points out that, although in nearly half his cases a fistula had persisted from the time of the first operation, in others the recurrence of trouble was delayed for as long as eight years. He met with the most bizarre deformities and angulations in the posterior urethra but was impressed by the frequency of an elevation of the posterior vesical lip, resembling in appearance a high median bar. Naturally he was more interested in the condition he had to deal with than with its possible causation, but he hazarded the observation that, although a skilled surgeon was unlikely to leave nodules behind, his cases seemed as liable to stenotic complications as those of his less experienced colleague.

What other information I have been able to collect on this matter tends to be ambiguous where it is not actually contradictory. It refers mainly to the sequelæ of prostatectomy when the gland is hard and fibrous, and the general impression is that the danger is greatest when the vesicoprostatic opening is narrow from the start—i.e., when the enlargement is subvesical, as it always is when the gland is fibrous.

CASE-RECORDS

Here is a summary of some cases I have seen myself.

CASE 1.—An elderly man, who some ten years previously had undergone prostatectomy and had never passed water in the natural way since then, came to me wearing an apparatus and with every evidence of a foul cystitis. I removed from his bladder, which was almost filled by it, one of the largest stones I have come across. The prostatic urethra was occluded by a fibrous sheet through which the head of a sound, passed down the penile urethra, could easily be felt. He had expressly forbidden any interference with this obstruction.

CASE 2.—I saw in consultation a man whose prostate had been removed three or four weeks previously, since when he had failed to pass any water. Neither his surgeon nor I could succeed in catheterising him. At the second operation his internal meatus was found to be completely closed, despite the fact that so recently a sizable prostate had been removed through it. At that time it had admitted two fingers; when I saw it it was represented only by a dimple. By cutting down on a bougie and excising the greatly thickened posterior lip of the orifice the obstruction was removed, and the man has had no trouble since.

CASE 3.—This patient had had prostatectomy three years previously but of late all his symptoms had recurred. He had already been seen by another surgeon, who had dilated him and warned him that he might need electrical removal of tissue. When I saw him, no instrument would pass. No abnormality was detected per rectum. Although I lost sight of him I heard later that he was admitted to hospital with acute retention. The facts were inconclusive, but I suspect that this was an example of the type of obstruction which I am discussing.

CASE 4.—The patient came with a history of a straightforward enucleation of a moderately enlarged prostate. Resumption of micturition was delayed, and no instrument could be passed. The prostatic bed became heavily infected, and pus poured from the urethra. At operation the internal meatus was found to be completely closed.

CASE 5.—This patient had a history similar to that of case 4 but was my own case. I had been passing a sound regularly, and the closure must have taken place during the third week, when I left a deputy in charge who neglected instrumentation; on my return it was no longer possible. The internal meatus had closed. Originally the vesicoprostatic opening had been large enough to admit of the delivery of a tolerably large prostate.

CASE 6.—A patient with a similar history to that of cases 4 and 5. In my temporary absence instrumentation had been neglected and, when I returned, was only possible with the smallest sound. However, some degree of dilatation was attained and a catheter tied in. As soon as this was removed, the narrowing recurred. The suprapubic wound never healed. In this case the stenosis arose in the prostatic urethra as a fibrous diaphragm stretching across it about a ¼ in. below the easily identifiable and uncontracted internal meatus. The gland in the first place had been apparently small and fibrous but microscopically showed "actively growing adenomatous structure with round-celled reaction."

In four of these cases information was available about the technique employed in the prostatectomy. They were all simple enucleations, and no attempt was made at excision of a shelf or reconstruction of the urethral floor. In the two of them which I performed the fact that the removal was at a second

stage and the patient's general condition was poor precluded any elaboration.

ANATOMY

The musculature at the internal meatus is an elaboration of the vesical musculature into two distinct components. One, the sphincter, surrounds the meatus like any other sphincter, but closer study reveals that anteriorly it is considerably attenuated. Its action is such as might be expected from a muscle of this type. The other component is the trigonal muscle, which is more complicated. It is fan-shaped and arises from a broad base along the whole length of the bar of Mercier, from which its fibres converge forwards to hook over the posterior segment of the sphincter and thence downwards in the urethral floor to their insertion near the verumontanum; this latter portion is known as the muscle of Bell. The antagonism between these two muscles is obvious: one closes the orifice, and the other opens it. Young and Wesson in 1921 published a remarkably instructive series of pictures illustrating this mechanism. The plates depict the internal meatus at rest and in the attempted act of micturition as seen through a direct-vision urethroscope. It should be remembered that even at rest the meatus is not circular; its margin is somewhat flattened posteriorly. In these pictures of attempted micturition one sees this flattening so exaggerated that the outline becomes triangular; at the same time the urethral floor is seen to be depressed and the verumontanum drawn up. What is happening is clear. The posterior meatal lip is being dragged backwards by the contracting trigonal muscle, and this proceeds until the angulation of the muscle is eliminated. The result is a urethral floor which slopes smoothly and uninterruptedly upwards on to the trigonal surface. (This is the anatomical ideal to be aimed at after a reconstruction of the internal meatus by endoscopic resection.)

The mechanism is considerably disturbed by prostatic enlargement, especially if the prostate projects into the bladder. A middle lobe must of necessity stretch the sphincter and displace it backwards by its projection. Not only does it displace the sphincter but it displaces the trigonal muscle also—in this case to either side. Evidence of the derangement can easily be obtained by examination of an operation specimen. The grooving of the sphincter can be seen surrounding the middle lobe, and some of its fibres can be identified clinging to it; the grooving of the trigonal muscle can be recognised on either side along the base of its lateral aspects. Consequently function is interfered with, and no amount of hypertrophy can compensate.

This distortion of the meatal mechanism by the enlarged prostate is widely recognised, whereas the effect of removal of the prostate is largely ignored. It is assumed that prostatectomy leaves a permanently gaping orifice, but this is not necessarily so. When the gland is removed, the sphincter is little disturbed anteriorly and retains its normal attachments, because it is only on the most exceptional occasions that there is an anterior lobe to be undermined. The lobes which require enucleation are the lateral and middle, with the result that the muscle is separated from its natural bed all along its lateral and posterior borders. Further, the trigonal muscle is completely severed from its insertion into the verumontanum.

EXPLANATION OF OBSTRUCTION

We are then left with a sphincter attached anteriorly but free elsewhere, save for its continuity with the vesical musculature, which does not restrain its activities. That specialised portion of vesical musculature which is normally its antagonist—i.e., the trigonal muscle—can no longer fulfil its office. At the same time the sphincter is still potentially contractile. Is it to be wondered at that contraction occasionally takes place, or that, when it does take place, it not only closes the bladder exit but also draws it forwards under the pubic arch?

I believe this to be the explanation of these cases. How else can the suddenness and solidity of the occlusion be explained? How else can the fact that the occlusion most commonly occurs at the wider end of the funnel-shaped prostatic cavity be accounted for? How otherwise is it possible to interpret the reduction of a vesicoprostatic opening that is two or three finger-breadths wide to the dimple so commonly found at the second operation, or indeed to make intelligible the dimple itself? What other reason can there be for the frequency of posterior "scarring" and the absence of anterior? No-one who has even a small experience of this particular complication of prostatectomy can accept the assurance that a wide opening is any particular safeguard. To my mind a muscular closure of the bladder neck supplies the most likely explanation of all the phenomena. That fibrosis is superimposed on closure detracts nothing from the argument, since circumstances indisputably predispose to it, but that it is the initial change seems to me improbable. (There is, of course, the other variety of stenosis, which is a true stenosis and occurs in the prostatic bed, most commonly after the removal of a fibrotic or calculus-containing gland.)

PROPHYLAXIS

With regard to prevention there is ground for much difference of opinion. Obviously, open operation is indicated, whether it takes the form of a Thomson-Walker excision of shelf or a Harris reconstruction of urethra. The general opinion nowadays seems to favour the latter method, although there are objections to it. Some of these are on technical grounds, and I do not propose to deal with them here; others affect the principle of the procedure. It is indisputable that an operation of this kind must add greatly to the length of time which the patient spends under the surgeon's hands. The delay is inevitable, not only because of the elaboration of technique but also because of the time occupied in obtaining adequate exposure. Should the prostatectomy follow a cystotomy this second factor becomes of very great importance, because it is necessary, if the prostatic bed is to be completely exposed, to dissect away all the scar tissue surrounding the suprapubic sinus and to free, to a greater or less extent, a contracted and sometimes fibrotic bladder. These considerations must weigh heavily in the balance against open operation when the patient's general condition is not all that might be desired. The question arises whether Thomson-Walker or Harris methods completely obviate the possibility of contracture. Undoubtedly they do not, because cases have been reported of its occurrence after their employment. However, the reports are isolated and often lacking in detail; so it would be rash to draw any far-reaching conclusions from them.

There is another aspect of the matter which claims attention. As regards end-results, both Thomson-Walker and Harris were most concerned about fibrosis. If the real danger is closure of the bladder neck and not fibrosis, is there an opportunity for a modification of technique?

One thing is certain, and that is that the indwelling catheter forms an essential part of the after-treatment of prostatectomy, however obnoxious it may be on hygienic grounds. Morson (1930) says that the healing in the prostatic bed is slow and is still incomplete when the suprapubic sinus has closed, even when the urethra has been reconstructed. This seems very probable and should be kept in mind when deciding when to dispense with the catheter. It does not follow that the catheter is still required after micturition has been restored, for micturition serves to maintain patency; but even at this stage the daily passage of a bougie is a wise safeguard. With regard to the insertion of the catheter the following point should be remembered. Its tip, if it is to be of any use at all in preventing contracture (and it is rather doubtful whether it can be, so far as the bladder neck is concerned), must lie within the meatus but not so far within it as to cause ulceration of the opposite bladder wall.

The indwelling catheter is particularly useful when true stenosis is to be feared—i.e., after removal of a fibrous or calculous gland. Occasionally the enucleation of a truly adenomatous enlargement is accompanied by a sagging out of a strip of urethra; if this accident is not noticed at the time, penile bleeding, when the patient gets back to bed, may suggest it. Here again there is danger of stenosis. It is a moot point whether a fibrous gland is ever suitable for prostatectomy if endoscopic resection can be performed.

TREATMENT

The diagnosis of this complication is made on the symptoms and on the difficulty in instrumentation. When, during convalescence from prostatectomy, catheterisation becomes increasingly difficult and micturition is delayed, its presence should be suspected. In these circumstances, especially if the surgeon is unfamiliar with the possibilities of the case, there is a strong temptation to force a passage at all costs, the patient having reached the stage at which his one ambition is to begin passing water in the natural way as soon as ever he can. This is the time for the greatest patience and gentleness, since a little reflection will make it clear that difficulty in instrumentation after prostatectomy is a matter of some gravity.

In the bladder-neck group any attempt at force is likely either to drive the instrument through the trigone or, worse still, to strip up the bladder from its attachments. The dangers of trauma are increased if there is any sepsis to be reckoned with, and the menace of a pelvic cellulitis is always in the background. If a sound can be introduced (this can sometimes be done by keeping its point well forwards), something may be achieved by gradual dilatation. In the early stages of closure the posterior Kollman may have a place in treatment; in the later the resectoscope may be useful. The true fibrotic strictures are more amenable to instrumentation if taken in time, but it should be remembered that the urethra is often distorted into a caricature of its normal course by the scarring.

In many cases it will be found impossible to pass any instrument, and open operation is then inevitable. When the meatus is closed, all the indurated tissue posteriorly is cut away until wide communication is established. It simplifies the procedure if a steel sound is passed through the urethra and its point cut down on from above Very little bleeding takes place.

When the stenosis is in the prostatic bed the approach is similar, but there are two dangers to be remembered in the excision of tissue. One is the proximity of the rectum posteriorly. The other is the proximity of the compressor urethræ, on which subsequent control depends, inferiorly. The after-treatment is with a retained catheter followed by dilatation.

SUMMARY

(1) There are two varieties of obstruction after prostatectomy: one arising at the internal urinary meatus, and the other in the prostatic bed.

(2) Obstruction at the internal meatus is far commoner than obstruction in the prostatic bed and is due not primarily to fibrosis but to muscular closure of the bladder neck.

REFERENCES

Coutts, W. E. (1934) *Urol. cutan. Rev.* **38**, 858.
Emmett, J. L. (1937) *J. Urol.* **37**, 869.
Macalpine, J. B. (1934) *Proc. R. Soc. Med.* **28**, 39.
Morson, C. (1930) *Ibid*, **23**, 1295.
Power, S. (1936) *Brit. med. J.* **1**, 282.
Riches, E. W., and Muir, E. G. (1933) *Brit. J. Surg.* **20**, 366.
Thomson-Walker, J. (1927) *Lancet*, **1**, 1009.
— (1930) *Ibid*, **1**, 1273.
Walker, K. (1933) The Enlarged Prostate, London.
Young, H., and Wesson, M. B. (1921) *Arch. Surg., Chicago*, **3**, 1.

ACCIDENTAL TRANSMISSION OF MALARIA

TO A CHILD BY THE INJECTION OF BLOOD

BY DAVID NABARRO, M.D. Lond., F.R.C.P.

DIRECTOR OF THE PATHOLOGICAL DEPARTMENT, THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET, LONDON; AND

DERRICK G. FF. EDWARD, M.D. Lond.

ASSISTANT PATHOLOGIST AT THE HOSPITAL

THE risk of using persons who may possibly be suffering from latent malaria as donors for a blood-transfusion is probably not sufficiently recognised. In England there has only been one recorded case of the accidental transmission of malaria to the recipient by blood-transfusion (Thomas, Keys, and Dyke 1936). Recently, however, Wright (1938) collected records of 29 cases in which malaria had been accidentally transmitted by blood-transfusion or by the intramuscular injection of blood. Reports of these accidents have come from several countries, but mostly from those where malaria is not endemic. In malarial countries the risk of transmitting the disease by the injection of blood must be greater, owing to the increased chance of any donor having malaria. It is, however, difficult to prove a definite example because of the impossibility of excluding a natural infection through the agency of a mosquito (Wang and Lee 1936). It is now well known that malarial infection may remain latent for many years in a person even after he has left a malarial country. This latent malaria may be symptomless, and even the initial infection may have gone unrecognised. The risk of using as donors of blood persons who, although they have no symptoms, yet may possibly have acquired malaria while living in a malarial country is thus obvious. The truth of this is borne out by Wright's collected cases, in which less than half the donors had had symptoms of malaria.

This paper records another instance of the transmission of malaria by an intramuscular injection of blood. The recipient, who was an infant, died from the malaria before treatment could be instituted. This is the first occasion on which this complication has proved fatal and it thus emphasises the need for care in the selection of a donor.

CASE-RECORD

The patient was a female infant and was the first child. Her ill fortune began at birth, for she was born in a state of blue asphyxia. The labour had been normal, and no instruments were used. On the first day of her life she had repeated attacks of cyanosis apparently due to subarachnoid hæmorrhage, for the cerebrospinal fluid was under pressure and contained blood. The lumbar puncture brought about an improvement in her condition, but on the third day she began to vomit bloodstained material. Later she became moderately jaundiced and passed almost black motions. She was admitted to the Hospital for Sick Children on the eighth day (Sept. 30, 1938). She did not then appear very ill, and her hæmoglobin percentage was normal. A diagnosis of melæna neonatorum was made, and she was treated by an intramuscular injection into the buttock of 7 c.cm. of whole blood obtained from her father. The infant improved rapidly and, there being no evidence of further bleeding, was discharged on Oct. 10, 1938.

For the first four weeks after her discharge she progressed normally; but during the three weeks preceding her second admission into hospital there was a history of restlessness, difficulty in feeding, sweating at night, and several small epistaxes. There had also been five convulsions, which had taken place at irregular intervals, the last happening on the day before admission.

She was readmitted on Dec. 6, 1938, then being aged ten weeks. Her head was found to be enlarged, with a circumference of 15 in.; the fontanelle was larger than normal. The only other abnormal signs were an easily palpable liver and a spleen that reached the level of the umbilicus. She was apyrexial on admission, but in the evening of the second day in hospital her temperature suddenly rose to 102° F. On the next day a blood-count gave the following results:—

Red cells	2,520,000	Polymorphs	47·5%
White cells	9300	Lymphocytes	35·0%
Hæmoglobin	55%	Monocytes	14·0%
Colour-index	1·1	Eosinophils	Nil
Normoblasts	16 per 100 red cells	Basophils	Nil
Erythroblasts	4·5 „ „	Metamyelocytes	1·0%
Megaloblasts	2 „ „	Myelocytes	2·5%

There was well-marked anisocytosis, poikilocytosis, and polychromasia, with many Howell-Jolly bodies and free nuclear fragments. But the blood film yielded much more important information than this. There were present also many typical quartan malarial parasites in various stages of development, including a few gametocytes. Films taken the next day showed the parasites to be present, but in much smaller numbers. The infant rapidly became worse; there was respiratory failure, and she died on the 10th in spite of treatment in an oxygen tent and before specific therapy could be started. She remained pyrexial to the end.

Post-mortem examination.—The body was that of a female infant weighing 10 lb. There was no external abnormality. The brain weighed 675 g. and appeared normal, there being no evidence of hydrocephalus. The heart was normal except for a patent foramen ovale; the ductus arteriosus was not quite closed. The lungs appeared normal. The liver was a little enlarged and somewhat bile-stained; it weighed 230 g. The spleen was much enlarged (weight 70 g.); it was firm and dark red. There was a small splenunculus at the hilum. The kidneys (average weight 72 g.) were normal, except that the right ureter passed in front of the lower pole of the kidney. The ureters, pelvis, and bladder were otherwise normal. No abnormality was discovered in the gastro-intestinal tract.

Histological examination.—The sinuses of the liver were congested; the Kupffer's cells were prominent and contained much dark-brown granular pigment. Inside the sinuses a few finely pigmented circular bodies were identified as malarial parasites. There was a little fine granular pigment in the hepatic cells, which were otherwise normal. None of the pigment gave the prussian-blue reaction for iron. Many nucleated red cells were present in the sinuses.

The spleen also was congested. There had been much hyperplasia of the reticulum cells and other large phagocytic cells; many of them contained granules of brown pigment which did not give the prussian-blue reaction. A few malarial parasites could be distinguished, both free and engulfed in phagocytes. Many normoblasts and megaloblasts were present in the pulp, being collected in places into small collections of actively erythropoietic tissue.

The kidney showed no abnormality apart from acute congestion. The heart muscle was normal. In the pancreas there was a peculiar area of cellular infiltration, whose nature was not quite certain, but which probably resulted from myeloid metaplasia. The brain was normal.

FURTHER INVESTIGATIONS

The discovery that the child had malaria necessitated careful inquiry into how she became infected. Apart from her time in hospital she had lived in the neighbourhood of West Byfleet, Surrey, and the possibility of infection by a mosquito can be excluded. The mother was healthy and had always lived in England. On the other hand, the father was born in Ceylon in 1908 and had lived there until 1936, except for six years, 1914–20. After living in Ceylon he went to Gibraltar for three years. He has lived in England ever since and thus has been away from Ceylon for twelve years. He had been in parts of Ceylon notorious for malaria and had been in the habit of taking quinine prophylactically, but he never to his knowledge acquired the disease. His only illness was an attack of fever at the age of sixteen, which was diagnosed as dengue fever. Since leaving that country he has been perfectly fit and well and lives an active life as a police constable.

Nevertheless, it appeared evident that the infant acquired malaria through the injection of the father's blood; and it has been possible, through the kind coöperation of Dr. E. L. Hutton and Mr. P. G. Shute, of the Horton Hospital, Epsom, to prove that his blood contains quartan parasites. A therapeutic injection of 10 c.cm. of the father's blood was made into a patient with general paralysis of the insane. At first nothing happened, and it was thought that the experiment was negative; so the patient was inoculated with *Plasmodium ovale*. Soon after he had developed this form of malaria, quartan parasites also began to appear in his blood and later predominated. The two types of parasites could be distinguished from each other in the films, and there was thus clear proof that the father still harboured quartan parasites in his blood, although they could not then be directly demonstrated in blood smears. Later, however, while under observation, the father had a short attack of fever, and more blood was taken for observation. Mr. Shute found a few quartan parasites in thick films, although two patients inoculated with the blood did not develop malaria.

COMMENT

The great length of time during which malarial parasites can persist in a person without producing symptoms has been shown on many occasions. Such a demonstration is afforded when a patient has a relapse many years after the initial infection without exposure to fresh infection, or when the infection is transmitted to another person with an improperly cleansed syringe or needle or by the injection of blood. Walton (1931) mentions a relapse of benign tertian induced by splenectomy in a patient who had

had malaria as a child but had lived symptom-free outside malarial districts for thirty-three years. In an example of the transmission of malaria by blood-transfusion, described by Stein (1932), the donor was a native of Greece who had lived in America for sixteen years. He had never to his knowledge suffered from malaria but had had several short periods of ill health. Naveiro (1934) describes a case in which the donor had had malaria thirty-seven years previously and since then had been without symptoms.

These observations show that every person who has had malaria, although he has remained free of symptoms for many years, must be regarded as a potential carrier of the parasites in his blood. So also must be regarded any person who has lived in an area where malaria is endemic, even if he has never to his knowledge acquired the disease. These facts must be borne in mind whenever the blood of one person is injected into another. It should be a routine procedure to inquire about possible malarial infection or residence in a malarial district before accepting anybody as a donor, and whenever possible such persons should not be used as donors. Since this veto excludes all those who have lived in the tropics or in many subtropical countries, it may on occasion be necessary to vary it. Then the recipient should be kept under observation for a period of at least three months, so that the possible onset of malaria should be recognised early and the disease adequately treated.

There appears to be some evidence that the risk of transmitting malaria by the injection of blood is greater if the recipient is a child. Among the 29 recorded cases in which the age is stated, 15 of the patients infected were children under fourteen. This may be due to particularly low resistance to infection in childhood. The absence of symptoms in latent malaria must be partly due to increased resistance, but there also appears to be a lowered virulence of the parasites. It is noteworthy that the father's blood in our case did not at first produce symptoms in the first patient with general paralysis of the insane into whom it was injected, and that the quartan parasites only began to appear in the patient's blood after he had also been given another type of malaria. Also, when subsequently tested when parasites were demonstrable in direct films, there was again apparent failure to transmit malaria to two other adult patients.

SUMMARY

An example is recorded of the accidental transmission of quartan malaria to a newborn infant by an intramuscular injection of blood, which proved fatal.

It is emphasised that precautions must be taken to avoid this accident whenever the blood of one person is given to another. All those who have ever had malaria, even though they have been symptom-free for many years afterwards, or who have lived in malarial countries must be regarded as potential carriers of the parasites in their blood.

It is suggested that infants and children are particularly liable thus to acquire malaria accidentally owing to low resistance. In latent malaria the parasites are probably of low virulence and may be unable to infect adults, although young children may be susceptible.

We wish to express our thanks to Dr. E. A. Cockayne for permission to publish the clinical details of this case and to Dr. C. M. Wenyon and the staff of the Horton Hospital, Epsom, especially Dr. E. L. Hutton and Mr. P. G. Shute, who carried out for us the tests and investigations on the blood of the donor.

REFERENCES

Naveiro, R. (1934) *Sem. méd., B. Aires*, **1**, 1588.
Stein, H. B. (1932) *Amer. J. Dis. Child.* **44**, 1048.
Thomas, W. L., Keys, S., and Dyke, S. C. (1936) *Lancet*, **1**, 536.
Walton, A. J. (1931) *Ibid.*, **2**, 945.
Wang, C. W., and Lee, C. U. (1936) *Chinese med. J.* **50**, 241.
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SURGICAL TREATMENT OF FACIAL PARALYSIS

A REVIEW OF 46 CASES

BY W. M. MORRIS, F.R.C.S.E.

SURGEON TO THE THROAT, NOSE, AND EAR DEPARTMENT OF THE LONDON HOSPITAL

THE purpose of this communication is to give details of the successful treatment of cases of facial paralysis by the three methods devised by Duel, where the lesion causing the paralysis is situated in the fallopian aqueduct—i.e., between the geniculate ganglion and the stylomastoid foramen. The commonest causes are Bell's palsy and injury of the nerve during mastoidectomy. The three methods are: (1) complete or end-to-end graft, where the nerve has been severed and a portion of nerve, taken elsewhere in the body, is used to bridge the gap; (2) inlay or side-by-side graft, used where some fibres of the nerve have been cut across or in other ways interfered with—e.g., by scar tissue; and (3) simple exposure of the nerve and decompression by incision of the sheath, as in cases of Bell's palsy.

The cases illustrated and described are taken from a series of 46 on which I have operated in the last three years and are typical of the successful results obtained. Before describing the selected cases in detail, I wish to record some interesting facts which I have observed during the recovery of the muscl function. In the great majority of the cases th muscles supplied by the lower branch of the fac nerve were the first to show signs of recovery. the very early stage, if the patient were asked show his teeth, there would be no obvious moveme of the mouth on the affected side; but, if asked t try and close his eyes, although unable to do so, in the effort the zygomatic muscles would, quite obviously, draw up the angle of the mouth (fig. 1*a*). This is curious, because in those cases in which recovery was practically complete, the eye closed normally, and symmetry was restored, the zygomatic muscles were the muscles which lagged behind. This may, perhaps, be explained by the fact that the muscles supplied by the lower division have a much greater excursion than those supplied by the upper division. Consequently, the lower-division muscles, when paralysed, are relaxed more than the upper-division muscles. But this does not explain why the zygomatic muscles are usually the first to show signs of recovery, unless it be that the action of these muscles is entirely voluntary, whereas the action of some other muscles round the eye is almost involuntary or instinctive as well as voluntary, as in blinking, due to stimulation from the conjunctiva. Later on, when recovery has reached a stage in which both upper and lower divisions are obviously working, the patient finds it impossible to dissociate the actions of the muscles, supplied by the two divisions, from each other. If asked to show his teeth, the eye partially closes in the effort (fig. 8*b*), and if asked

FIG. 1—Case 1, six months after operation; some movement of the angle of the mouth on attempting to close the eyes.

FIG. 2—Case 1, thirty-two months after operation; recovery complete; eye can be closed without any accompanying movement of the angle of the mouth (cf. fig. 1).

to shut his eyes and to frown, the angle of the mouth is raised (fig. 1*a*).

These associated movements disappear in time, as recovery becomes complete (figs. 5–8). Since the graft or decompression has been carried out in the trunk of the nerve in the aqueduct and re-enervation is taking place from that point the fibres of both divisions should be affected equally. In consequence, until recovery is complete, impulses travelling down the main trunk affect both divisions equally. An

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FIG. 4—Case 2, six months after graft; (*a*) right eye completely closed, without any accompanying movement of the muscles supplied by the lower division of the facial nerve (cf. fig. 3*a*); (*b*) increased movement of lower-division muscles as compared with fig 3*b*; (*c*) overaction of recovering muscles on the whole side of the face on whistling.

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sound and corresponds to the "cocking" of the ears in a horse or dog. All this appears to show that in these upper-division muscles there is some involuntary or instinctive movement as well as voluntary. Perhaps for this reason the muscles of the upper division show a more obvious and complete recovery earlier than those of the lower division.

Treatment of the muscles during recovery should be restricted to manual massage, with a view to stimulation of the blood-supply. Electrical massage, causing contraction of the muscles, is contra-indicated.

FIG. 5—Case 3, complete left facial palsy.

FIG. 6—Case 3, five months after graft.

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REFERENCES

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The cases illustrated and described are taken from a series of 46 on which I have operated in the last three years and are typical of the successful results obtained. Before describing the selected cases in detail, I wish to record some interesting facts which I have observed during the recovery of the muscle function. In the great majority of the cases the muscles supplied by the lower branch of the facial nerve were the first to show signs of recovery. In the very early stage, if the patient were asked to show his teeth, there would be no obvious movement of the mouth on the affected side; but, if asked to try and close his eyes, although unable to do so, in the effort the zygomatic muscles would, quite obviously, draw up the angle of the mouth (fig. 1*a*). This is curious, because in those cases in which recovery was practically complete, the eye closed normally, and symmetry was restored, the zygomatic muscles were the muscles which lagged behind. This may, perhaps, be explained by the fact that the muscles supplied by the lower division have a much greater excursion than those supplied by the upper division. Consequently, the lower-division muscles, when paralysed, are relaxed more than the upper-division muscles. But this does not explain why the zygomatic muscles are usually the first to show signs of recovery, unless it be that the action of these muscles is entirely voluntary, whereas the action of some other muscles round the eye is almost involuntary or instinctive as well as voluntary, as in blinking, due to stimulation from the conjunctiva. Later on, when recovery has reached a stage in which both upper and lower divisions are obviously working, the patient finds it impossible to dissociate the actions of the muscles, supplied by the two divisions, from each other. If asked to show his teeth, the eye partially closes in the effort (fig. 8*b*), and if asked

FIG. 1—Case 1, six months after operation; some movement of the angle of the mouth on attempting to close the eyes.

FIG. 2—Case 1, thirty-two months after operation; recovery complete; eye can be closed without any accompanying movement of the angle of the mouth (cf. fig. 1).

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These associated movements disappear in time, as recovery becomes complete (figs. 5–8). Since the graft or decompression has been carried out in the trunk of the nerve in the aqueduct and re-enervation is taking place from that point the fibres of both divisions should be affected equally. In consequence, until recovery is complete, impulses travelling down the main trunk affect both divisions equally. An infant can register only two emotions with its facial muscles—by laughing or crying—and in doing so it uses together all the muscles supplied by the two divisions. When it grows older it can use a group of muscles independently of the others, as in raising one side of the mouth without the other. This development of the various groups is carried on until, in adult life, the face can express a great variety of emotions, such as hatred, sorrow, anger, affection, pain, or surprise, of which a baby's face is incapable. Some of us develop this separate movement of groups of muscles to a greater extent than others. I can raise my left eyebrow without raising the right or contracting any other muscle of my face, but I cannot raise the right without raising the left. Most people can only raise both together. Nearly everyone can wink with one or the other eye, but they are unable, voluntarily, to close one eye without partially closing the other. I can also move either ear independently at will, but ordinarily this movement is involuntary when I am listening carefully to a minute sound and corresponds to the "cocking" of the ears in a horse or dog. All this appears to show that in these upper-division muscles there is some involuntary or instinctive movement as well as voluntary. Perhaps for this reason the muscles of the upper division show a more obvious and complete recovery earlier than those of the lower division.

Treatment of the muscles during recovery should be restricted to manual massage, with a view to stimulation of the blood-supply. Electrical massage, causing contraction of the muscles, is contra-indicated.

FIG. 3—Case 2, eight years after mastoidectomy; (*a*) the right eye is not completely closed, and the angle of the mouth is partly raised in the effort to close the eye; (*b*) the effort to raise the angle of the mouth partly closes the right eye.

FIG. 4—Case 2, six months after graft; (*a*) right eye completely closed, without any accompanying movement of the muscles supplied by the lower division of the facial nerve (cf. fig. 3*a*); (*b*) increased movement of lower-division muscles as compared with fig 3*b*; (*c*) overaction of recovering muscles on the whole side of the face on whistling.

FIG. 5—Case 3, complete left facial palsy.

FIG. 6—Case 3, five months after graft.

Electrical contraction of a muscle which is being re-enervated will very soon exhaust it. Besides manual massage, I make my patient practise movements in front of a mirror for ten minutes two or three times a day, making the muscles of the unaffected side move only as much as the recovering muscles will move. This restores symmetry more quickly, which is the first objective. Some patients, more enthusiastic than obedient, spend most of the day doing these exercises, and I constantly find one or other group of muscles in a state of fibrillation. Electrical stimulation will produce this condition as well, and that is why I discourage it. The cases illustrated show that the results obtained by this method far exceed those of any of the older methods.

FIG. 7—Case 4, complete right facial palsy.

CASE-RECORDS

CASE 1.—Complete or end-to-end graft in a woman, aged 51, with a history of complete mastoidectomy for right middle-ear suppuration of many years' standing by Hunter Tod in 1920. The posterior wound had healed by first intention, and there was no further suppuration until March 8, 1936, when she noticed otorrhœa and sudden onset of right facial palsy. On the 22nd a diagnosis of cholesteatoma and complete right infranuclear facial palsy was made.

At operation on April 6, 1936, the mastoid was reopened. No cholesteatoma was found. The appearance in the meatus was due to desquamated epithelium and meatitis, and the diagnosis was changed to Bell's palsy. I decided to decompress the facial nerve, and in exposing it I accidentally removed with bone forceps a portion of the nerve, 3 mm. long, whereupon I identified and isolated the anterior femoral cutaneous nerve in right leg.

On the 30th I transplanted a portion of this nerve, now degenerated, to bridge the gap in the facial nerve.*

No photograph was taken before the operation, but the photographs shown in fig. 1 were taken on Oct. 26, six months after the operation, when it was obvious that there was some movement of the angle of the mouth when the patient attempted to close her eyes (fig. 1*a*). The photographs shown in fig. 2 were taken on Dec. 1, 1938, by which time recovery was complete—i.e., thirty-two months after operation.

In later cases I have given up isolating the nerve and allowing the nerve-fibres to degenerate. The graft is transferred at the time of the first operation. This appears to work just as well and makes a second operation unnecessary. It will be noticed, also, that in fig. 2*a* recovery is so complete that the eye can be closed without any accompanying movement of the angle of the mouth (cf. fig. 1*a*).

CASE 2.—A girl, aged 12, had an acute right mastoiditis in 1930. Incomplete mastoidectomy with injury of the facial nerve caused complete facial paralysis. There was only partial recovery over a period of two years. The photographs shown in fig. 3 were taken on Jan. 15, 1938, eight years after the original operation, and demonstrate the amount of recovery. Fig. 3*a* shows that the right eye is not completely closed, and that the angle of the mouth is partially raised in the effort to close the eye. In fig 3*b* the effort to raise the angle of the mouth partially closes the right eye.

Operation on the 25th consisted in decompression of the right facial nerve and inlaid or side-by-side graft. This was decided on because an end-to-end graft would have meant the loss of all recovery which had developed during the eight years since the original operation.

The photographs shown in fig. 4 were taken on July 28, 1938, six months after the graft was inserted. Fig. 4*a* shows the right eye completely closed, without any accompanying movement of the muscles of the lower division (cf. fig. 3*a*). Fig. 4*b* shows the increased movement of the lower-division muscles as compared with fig. 3*b*, and fig. 4*c* the overaction of the recovering muscles of the whole side of the face on whistling, as shown by the raising of the angle of the mouth and the eye being more closed than the left.

CASE 3.—A man, aged 24, with left otorrhœa for many years and sudden onset of left facial palsy on Oct. 14, 1937. Photographs taken on Feb. 14, 1938, show complete paralysis four months later (fig. 5). Bell's palsy due to infection spreading into the aqueduct from the middle ear or mastoid was diagnosed. Operation consisted in simple decompression of the facial nerve, without graft. Photographs taken on July 25, 1938, five months later, show the progress made (fig. 6).

FIG. 8—Case 4, five months after operation: (*a*) shows complete restoration of facial symmetry (cf. fig. 7), but (*b*) shows an associated action of orbicularis palpebrarum muscles on attempting to bare the teeth.

CASE 4.—A man, aged 23, sustained a fracture of his skull in August, 1938, resulting in right facial paralysis without deafness or other intracranial symptoms. He was referred to me by Mr. Northfield, who had had him under observation. Photographs taken on Oct. 17, 1938, three months after the accident, show complete facial paralysis (fig. 7).

Radiography showed a linear fracture of the right temporal bone, which could not be followed into the petrous portion. Since, however, the lesion of the facial nerve was the only symptom, I concluded that the fracture involved the aqueduct; and so it proved.

On Oct. 17, 1938, I exposed the nerve but found no evidence of pressure or injury until I exposed the horizontal portion of the aqueduct, where it lies under the external canal of the labyrinth. Here I

* This was my first attempt to do this and I wish to acknowledge my indebtedness to Professor Cairns, who helped me with this case, for his advice and encouragement.

removed newly deposited bone which was blocking the lumen and pressing on the nerve. It came away easily, and I then incised the sheath throughout its course in the aqueduct.

Photographs (fig. 8) were taken on March 27, just five months later; fig. 8*a* shows that the symmetry of the face has been completely restored (cf. fig. 7*a*), but in fig. 8*b*, on attempting to bare the teeth, there is associated action of the orbicularis palpebrarum muscle; hence the right eye is more closed than the unaffected left eye (cf. fig. 7*b*).

DISCUSSION

From the appearance of the nerve in cases of Bell's palsy there can be no doubt that congestion, due either to infection or to variation in temperature, is the cause of the paralysis, by making the nerve swell in its bony canal. The nerve-fibres cannot convey impulses owing to the pressure, and paralysis results.

In an effort to isolate an organism, Professor Bedson has investigated three cases for me in which there was no evidence of zoster infection in the way of skin eruption or involvement of the geniculate ganglion, and I am indebted to him for the report that there was no evidence of zoster infection in any of them.

Four cases in the series have, so far, shown no evidence of recovery. One, the second in the series, was a case of paralysis in a man, aged 29, who had had long-standing middle-ear suppuration and was admitted as an emergency case of lateral sinus thrombosis and facial palsy. After radical mastoidectomy, ligation of the internal jugular vein, and evacuation of the thrombus, he developed an osteomyelitis of the temporal bone and lost the outer table over a large area. It was after his recovery from this that decompression of the nerve was attempted, and, in considering the case now, I feel that I should have been content with the fact that he was alive and should not have subjected him to further operation. Another case was a palsy due to myoclonia. This, too, occurred early in the series, and the diagnosis of Bell's palsy was at fault. The operation should not have been attempted. Of the other two, one was a Bell which is unhealed still, nine months after decompression, and infection may well be the reason why there is no recovery so far. The other was a young woman, aged 23, who had had a radical mastoidectomy in which the inner wall of the aditus and antrum was removed as a sequestrum. An end-to-end graft was inserted, but I doubt whether I was able to approximate my graft to the proximal end of the facial nerve, which would be about the position of the geniculate ganglion.

All the other cases, whether end-to-end, side-by-side grafts, or simple decompressions, have recovered muscle function, some complete, some partial. In the cases of partial recovery the patient is always most grateful for the loss of epiphora, which seems to be a constant improvement in all of them. Cases 3 and 4, in which recovery is complete, are late in the series and I think it probable that this is the result of improved technique, which is admittedly difficult, since I did my first case three years ago.

The cases of Bell's palsy were selected from cases in which there was no evidence of recovery at all two months or more after the onset and the reaction of regeneration was present. First evidence of recovery varied from a week to months after the operation. In the cases in which partial recovery had taken place and then come to a standstill improvement was invariably slow. Recovery in side-by-side graft took anything from three months to a year to show itself. In the end-to-end grafts no evidence of recovery can be expected before six months, and probably not for a year.

PICROTOXIN IN THE TREATMENT OF BARBITURATE POISONING

BY J. L. LOVIBOND, M.D. Lond., M.R.C.P.

ASSISTANT PHYSICIAN, KING GEORGE HOSPITAL, ILFORD; MEDICAL REGISTRAR, MIDDLESEX HOSPITAL, LONDON; AND

G. C. STEEL, M.R.C.S., D.A.

ANÆSTHETIC REGISTRAR, MIDDLESEX HOSPITAL

OUR interest in the treatment of barbiturate poisoning has been aroused by favourable reports from America on the use of picrotoxin as a physiological antidote. An opportunity has recently arisen to enable us to put this method of treatment into practice. The results have been so striking that we are encouraged to publish the case.

Picrotoxin is a convulsant and appears to act as an intense medullary and cortical stimulant (Edmunds and Gunn 1936). Although it does not directly hasten the destruction of the barbiturate (Kline, Bigg and Whitney 1937) it effectively counteracts the hypnotic effects. There is abundant proof that picrotoxin is superior to other possible antidotes in the experimental barbiturate intoxication of animals (Maloney, Fitch and Tatum 1931, Maloney 1933, Arnett 1933, Gower and Van de Erve 1933) but the effect of this drug is not yet widely known in man (Bleckwenn and Masten 1938). Since the first case of barbiturate poisoning treated by picrotoxin was published by Arnett six years ago only 24 have been recorded; of these 17 recovered and in the remainder life was manifestly prolonged.

CASE-RECORD

A married woman aged 35 was admitted to King George Hospital, Ilford, at 9 P.M. on May 6, 1939, having probably been in coma since the preceding night. She had been found unconscious in bed that morning. Although she lived in a doctor's house where supplies of barbiturates were freely available, there was no direct evidence of what preparation she had taken. The diagnosis of barbiturate poisoning was made from the clinical appearance of the patient and was afterwards confirmed by the identification of this substance in her cerebrospinal fluid (cobalt nitrate and Millon's tests positive). Persistent albuminuria had been present following nephritis five years previously.

On admission she was in a deep coma, very collapsed and failing to respond to any form of stimulus. Stertorous respiration-rate 25–30, pulse 120, temperature 99°F. Skin dry and hot, slightly cyanosed. Mouth foul with dry sordes. Pupils contracted but reacting. Deep reflexes suppressed. Lungs clear. B.P. 170/110. Retinal arteries constricted. Other systems virtually healthy. Freely incontinent. Albumin in catheter specimen of urine.

Until we were able to obtain the picrotoxin some three hours later the routine treatment for hypnotic poisoning was initiated. This consisted of gastric lavage, lumbar puncture, intravenous saline and intranasal oxygen. However no significant change was observed in the patient's condition and she was still in deep flaccid coma when the treatment by picrotoxin was started. This was given by intravenous injection in divided doses of 2·0 c.cm. of 0·3 per cent. solution (1·0 c.cm. of which contains 3 mg.). As can be seen from the following table the "awakening effect" was rapid. In less than three hours she had

recovered sufficiently to ask for a drink of water and to hold the glass herself while she drank a tumblerful.

Date in May	Time	Picrotoxin (mg.)	Clinical condition
6	9 P.M.	—	Admitted to hospital. Deep coma (duration possibly 24 hours)
	12 MDN	6	Respiration quickened and deepened after 2 minutes. Pulse slowed from 140 to 115, becoming fuller. B.P. unaltered
7	12.15 A.M.	—	Began grimacing. Becoming restless
	12.45 A.M.	6	Purposive movements of mouth, frontalis and orbicularis. Pulse 120
	12.50 A.M.	6	Stertor gone. Eyeballs rotating. Movement of mouth and lower jaw
	12.55 A.M.	6	Alæ nasi working. Still unable to respond to commands
	1.20 A.M.	6	Resentful of injection. Considerable movement of free arm. Beginning to cry intelligibly "I want to get up." Grip reflex present
	1.50 A.M.	6	Animated movements, followed by relapse into more restful coma as though tired. Jaw dropped. Pulse 110
	2.10 A.M.	6	No change. Still as though sleeping
	2.45 A.M.	—	After being pinched she stirred and asked for drink of water. Took glass, held it herself and sat up while she drank 10 oz.
	8 A.M.	—	Comatose again. Not easily stimulated to movement
	12.5 P.M.	6	Still lethargic
	12.25 P.M.	6	Restless
	12.45 P.M.	6	Became very restless after this. Muttering and sobbing. Speech not yet clear
	4 P.M.	—	Still lying with closed eyes but in answer to commands able to open them and protrude tongue. Taking drinks. T. 99·4° F., P. 115, R. 26
8	Throughout day	—	Rather drowsy but revived at times. Fairly restless. Somewhat tearful. Able to take solid food and drinking well. (Intravenous saline discontinued.)
9	et seq.	—	Completely resuscitated. Cheerful. T. and P. normal. B.P. 125/75
16	—	—	Discharged home. No sequelæ when last heard of two months later

DISCUSSION

It will be noticed that the picrotoxin was at first given intermittently for two hours until the patient had been fully stimulated into effectual restlessness. For the next ten hours it was discontinued until a gradual relapse required a further 18 mg. In the intervening hours and subsequently, until 10 P.M. two days later, 4 c.cm. of Coramine was injected intravenously at two-hourly intervals. A total of 54 mg. of picrotoxin and 112 c.cm. of coramine were given. It must, however, be emphasised that the effect of the picrotoxin after every injection was dramatic and obvious whereas no remarkable result was evidenced at any time from the coramine. Further, coramine was entirely withheld until the patient had been revived initially by the first 36 mg. of picrotoxin. It was then given for economic reasons in an attempt to sustain the favourable effect of the picrotoxin. It was quite clear to us that the observed effect of picrotoxin in this case could not possibly be confounded with that of the other remedies used.

After each injection of picrotoxin a latent period of one to three minutes preceded the signs of response. The reactive irritability would reach its peak after several minutes then to subside if no injection immediately followed, leaving the patient again in coma. The effect of this temporary stimulation was each time to lighten the degree of coma into which she would afterwards lapse, so that narcosis became successively shallower. It is possible that we could have prevented these relapses by administering picrotoxin more frequently or in bigger doses. Nevertheless we felt that so long as we were able to keep our patient restless, thereby increasing her pulmonary ventilation, we could considerably reduce the danger of the most serious complication of barbiturate poisoning, namely, pneumonia. This, indeed, we effected and in the majority of the recorded cases pulmonary complications have been similarly avoided.

The problem of dosage remains controversial (Rovenstine 1938) but it would seem that far larger therapeutic doses are both possible and safe. The dangers of overdosage of picrotoxin in barbiturate poisoning have conceivably been exaggerated but it may be borne in mind that over-stimulation can produce convulsions which in turn are followed by increased depression. We gained the impression from this case that had it been more severe we could with impunity have given larger doses of the drug. Previous reports have shown that heroic therapeutic doses can be tolerated which are many times greater than the lethal dose of picrotoxin. It is, therefore, of vital importance only to employ this potent antidote in cases where the diagnosis of barbiturate poisoning is certain. Intravenous picrotoxin should be given continuously until spontaneous movements, restlessness and a substantial decrease in the coma are apparent. After this intramuscular injections may be sufficient to sustain the stimulatory effect (Kohn 1938). As a precautionary measure Evipan or Pentothal should be kept ready as a rapid antidote to an overdose of picrotoxin. Bleckwenn and Masten have advocated a dosage at the rate of 1 mg. per minute and Murphy et al. (1937) have suggested an initial 5 mg. which can be doubled after twenty minutes, continuing with smaller doses of 2–5 mg. until the patient emerges from coma. The largest dose recorded without ill effect was 2134 mg. in a single case (Rovenstine). We venture to predict that in the future the specific value and comparative safety of picrotoxin in preventing death from barbiturate poisoning will be abundantly confirmed with the experience of further clinical trials.

CONCLUSION

Picrotoxin, a violent convulsant poison, can be used with safety in relatively large doses in barbiturate poisoning wherein it has proved to be dramatically effective in saving life.

REFERENCES

Arnett, J. H. (1933) *J. Amer. med. Ass.* **100**, 1593.
Bleckwenn, W. J., and Masten, M. G. (1938) *Ibid*, **111**, 504.
Edmunds, C. W., and Gunn, J. A. (1936) Cushny's Textbook of Pharmacology and Therapeutics, London.
Gower, W. E., and Van de Erve, J. (1933) *J. Pharmacol.* **48**, 141.
Kline, E. M., Bigg, E., and Whitney, H. A. K. (1937) *J. Amer. med. Ass.* **109**, 328.
Kohn, R. (1938) *Ibid*, **111**, 387.
Maloney, A. H., Fitch, R. H., and Tatum, A. L. (1931) *J. Pharmacol.* **41**, 465.
— (1933) *Ibid*, **49**, 133.
Murphy, W. S., Connerty, H. V., Connolly, A. J., and Koppanyi, T. (1937) *J. Lab. clin. Med.* **22**, 350.
Rovenstine, E. A. (1938) *Amer. J. med. Sci.* **196**, 46.

A congress on Nutrition and Education will be held at British Medical Association rooms, Edinburgh, on Saturday, Oct. 14, under the auspices of the Scottish Committee against Malnutrition, which was formed a year ago by a group of doctors. There will be an afternoon and evening session and it is hoped that Sir Robert Greig, D.Sc., will take the chair. Sir John Orr, F.R.S., director of the Rowett Research Institution, Aberdeen, will be one of the speakers. The main subjects for discussion will be existing nutritional conditions as compared with minimum health requirements, and malnutrition as it affects education. Further information can be obtained from the hon. secretary, 111, Trinity Road, Edinburgh.

MEDICAL SOCIETIES

BRITISH MEDICAL ASSOCIATION

SECTIONS OF SERVICES AND TROPICAL MEDICINE AND PUBLIC HEALTH AND HYGIENE

AT a joint meeting of these sections, with Lieut.-General Sir WILLIAM MACARTHUR in the chair, a discussion was held on

Leptospirosis

Prof. L. S. P. DAVIDSON (Edinburgh) said that of the 248 accurately diagnosed cases of Weil's disease in Great Britain, 109 have been in fish-workers. Furthermore, serological tests of 210 apparently healthy fish-workers showed that 24·3 per cent. had been infected, whereas tests of 406 controls not engaged in this industry were all negative. Infection takes place in three grades: (1) mild with symptoms insignificant or absent; (2) moderate with influenzal symptoms and no apparent jaundice; and (3) severe. The illness begins suddenly with headache, vomiting, generalised muscular pains and fever. Conjunctivitis ("pink eye") and albuminuria with cells and casts are helpful in diagnosis, but jaundice rarely appears before the third day and a diagnosis of influenza is usually made. If jaundice has not appeared by the second week the case is mild and symptoms rapidly abate. In moderate cases fever declines during the second week but jaundice and toxic nephritis are more prolonged. In severe cases convalescence may be long and there may be a secondary rise of temperature during the third week. In unfavourable cases jaundice steadily increases, the urinary output falls, blood-urea rises, hæmorrhages take place, and the falling blood-pressure and mounting pulse indicate the gravity of the situation. In the Aberdeen series the mortality was 5·7 per cent., about half that in Holland, and the favourable figure was probably due to the high incidence among healthy girls in the fish industry. The prognosis becomes progressively worse with increasing age and particularly in alcoholics; fatal cases usually die between the eighth and tenth day. A neutrophil leucocytosis of 10,000–30,000 is characteristic, and in severe cases anæmia and thrombocytopænia may be marked. The icterus index is raised and the blood-urea usually increased, high values being of serious significance, although cases can recover despite a high blood-urea. In Aberdeen 10 per cent. of cases showed evidence of meningitis but all recovered; the protein of the spinal fluid was increased, there was a pleocytosis, at first polymorphonuclear and later becoming lymphocytic; specific agglutinins were demonstrated in the fluid in each case but in no instance were leptospiræ isolated. Antileptospiral serum in doses of 10–20 c.cm., repeated in four to six hours as required, notably reduce toxæmia and mortality when given early, but after the seventh day the beneficial effects are less marked. Alkaline mixtures are of value for the gastritis and to facilitate urinary excretion. In view of the hepatic and renal damage fat and proteins are restricted and a diet rich in carbohydrates is given; plenty of fluid with glucose seems to be beneficial. Simple precautions that were suggested to the fish industry in 1934 appear to have been disregarded.

Dr. JOHN SMITH (Aberdeen), discussing laboratory diagnosis, said that during the first week of the disease the serum can be tested for agglutinins and the clot inoculated into guineapigs or culture medium for isolation of the organism. During the second week the agglutination and lysis tests are valuable while from the second to the fourth week organisms may be detected directly or by inoculation in freshly passed urine. He has found leptospiræ in patients' blood by guineapig inoculation in all cases up to the fourth day, but only in exceptional cases after the seventh or eighth day. Agglutination reactions are negative before the third day but positive in all cases by the ninth day. In only three instances were leptospiræ isolated from blood showing agglutinating power, but in these cases the titre was 1 : 30 or less. In four cases when first examined between the fifth and eighth day neither organisms nor agglutinins were demonstrated and such cases may be misleading without further examinations. Leptospiræ were never recovered from the urine during the first week, the maximum success (21·5 per cent. positive) being obtained in the third week, and all were negative again after the fourth week. Agglutinins, probably excreted in association with euglobulin, are sometimes demonstrable in the urine of convalescent patients. Many years after infection cases may still have high agglutination titres in the blood; 15 out of 47 fish-workers who had a history of jaundice gave a positive test, 18 out of 48 who had only suffered from a febrile illness were positive, and 18 out of 145 with no history of disease were found to have positive titres. It seems impossible, he said, to keep the premises free from rats, but washing down each morning with a hose, the use of hypochlorite disinfectants and greater cleanliness would reduce the incidence of the disease in fish-workers.

Dr. J. M. ALSTON (London) discussed the cases seen during the last five years in London sewer-workers, the therapeutic effect of antiserum and the prophylactic measures employed. Each worker is given a card drawing attention to methods of hygiene and the importance of proper treatment for cuts and minor injuries. In the event of any illness the card can be shown to the workman's doctor, so that the possibility of Weil's disease may be realised, and this results in men being sent earlier to hospital. Errors of diagnosis by agglutination reaction in cases that have previously received antiserum seem improbable, since rabbits given antisera show a rapid fall in titre below the theoretical values that might result from the doses given. False positive reactions may be obtained in the macroscopic agglutination test where formolised antigen is used.

Dr. T. FERGUSON (Edinburgh) said infective jaundice was made notifiable in Scotland in 1924 following an outbreak among miners in East Lothian. Some 558 cases have been notified but many of these, particularly the earlier ones, were found to be catarrhal jaundice, although more than 200 cases of Weil's disease were confirmed. Of the latter 9 were children, probably infected in rat-infested streams; of the remainder 62 were coalminers from wet, rat-infested pits especially in Lanark, Fife and the Lothians; 92 were fish-workers in Aberdeen; 9 were sewer-workers; and several were farm-workers. In 1926 a departmental committee set up by the Home Secretary reported that Weil's disease might properly be scheduled as an occupational disease under section 45 of the Workmen's Compensation Act subject to certain conditions, the chief of which was that the diagnosis should be confirmed bacteriologically or serologically. So far the disease has not been added to the schedule, but a decision of the court of session

in Scotland in 1926 held that it may be regarded as an industrial accident, and as such is covered by the Workmen's Compensation Act.

Dr. F. MURGATROYD (London) thought anti-leptospiral serum ought to be given immediately there is reasonable probability of Weil's disease even while awaiting laboratory confirmation, as in the early stages it is impossible to forecast the course of the infection. Suggestive clinical features are muscular tenderness, conjunctival injection and polymorphonuclear leucocytosis, particularly in those exposed to risk of infection. Syndromes with influenzal, meningeal, pulmonary or even abdominal symptoms have occurred and consequently in any obscure fever Weil's disease should be considered. In isolating leptospiræ from the urine by animal inoculation or culture greater success is obtained if the urine is first made alkaline by giving the patients alkalies, as the organism appears to die rapidly in acid urine. Comparable to this is the fact that in Queensland the epidemics of Weil's disease among the cane-cutters arose chiefly after the heavy rains which reduced the normal acidity of the soil and so assisted the survival of leptospiræ deposited by the rats. As a method of prophylaxis vaccination appears successful in animals but less satisfactory as a practical procedure for man.

Dr. R. D. STUART (Glasgow) said that in the West of Scotland miners, tripe-scrapers and sewer-workers are the groups chiefly affected. The incidence in miners appears to be about 1·5 per cent., but there is evidence to suggest that considerable epidemics have occurred in certain pits. Recently the disease has been found among labourers in the beet-fields in West Cork. Among tripe-workers the cases were mainly mild but all the illnesses were severe among the sewer-workers. As the majority of cases are misdiagnosed in the early stages the occupational risk should be more widely recognised and all "atypical influenza" cases considered suspect. Where infection is localised and severe, as in sewer-workers, vaccination should be considered, and for all cases anti-leptospiral serum should be immediately available.

Dr. J. J. PATERSON (Maidenhead) asked how the leptospira gained entrance to man. Dr. P. H. MANSON-BAHR (London) said the spleen is not usually enlarged in Weil's disease; he also suggested rubber gloves to protect the fish-workers. Prof. J. W. MCNEE (Glasgow) thought that during the late war infection of the soldiers took place through the alimentary tract. He has not found the spleen enlarged, and he said that hæmorrhagic herpes, when present, is a valuable diagnostic sign.

Professor DAVIDSON replied that fish-workers are probably infected through abrasions on the hands but he does not think gloves would be feasible. He agreed that splenomegaly is not a feature of the disease. Dr. Smith followed Schüffner's technique in the agglutination test; for the detection of the organism itself he preferred animal inoculation. He suggested that cases might be looked for among the fish-workers of Grimsby and Hull. General MACARTHUR, closing the discussion, said that more careful examination would reveal a greater proportion of cases without jaundice, as they are probably now being overlooked. Jaundice is no more necessary for the diagnosis of Weil's disease than is a rash for the diagnosis of typhoid.

Sero-Diagnosis of Enteric Fevers

Lieut.-Colonel J. S. K. BOYD (R.A.M.C., London), in a short paper, pointed out that the usual serological methods for the diagnosis of enteric fevers are not entirely satisfactory. In subjects previously inoculated with typhoid-paratyphoid vaccine various febrile conditions may produce anamnestic rises of H-agglutinins indistinguishable from those due to actual infection, while in true infections the O-agglutinins, although more specific, sometimes develop so sluggishly that a diagnostic rise is not obtained. Tests for Vi-agglutinins, only applicable at present to *Bact. typhosum* infections, were originally complicated owing to instability of the antigen, but an alternative technique has now been provided by the discovery of strains of *Bact. typhosum*, devoid of H- and O-antigen and possessing only Vi-antigen, which can be preserved as standardised formol suspensions. Vi-agglutinins have an important diagnostic significance in the early stage of infection but after the first week they disappear in many cases; they are also important in the detection of permanent carriers but may be absent in convalescent carriers. An important advance is the discovery of bacteriophage having a specific action on virulent strains of *Bact. typhosum*. Four serological types of such Vi-phage have been differentiated, one of which, type II, readily becomes conditioned specifically against various strains of *Bact. typhosum;* in this way thirteen phage-types of *Bact. typhosum* have been distinguished. These phages offer a simple means for typing unknown strains; a number of spreads on agar plates of the bacterium to be tested can be spotted with drops of the various conditioned phages in standardised dilution and the specific lytic effect observed. The phage type of the bacterium remains constant, being unaffected by passage through man, experimental animals or culture, and the test is of value, for example, in linking up an outbreak with a particular carrier, or in determining the source of an individual infection.

Dr. R. D. STUART (Glasgow) asked whether continued fevers in India due to salmonella infections might not give confusing O-agglutination results, and Prof. C. P. BEATTIE (Iraq) stated that O-agglutinins may be found up to a titre of 1 : 100 in normal persons and may also develop after T.A.B. inoculation. Dr. P. H. MANSON-BAHR (London) said that during the war the H-titre in inoculated persons was found to rise during an attack of malaria. Dr. J. M. ALSTON (London) asked whether virulence varies with phage-type and whether supplies of bacteriophage are available and easy to maintain.

Replying, Colonel BOYD said salmonella infections are relatively unimportant as they are few and far between in India. He agreed that O-agglutinins, and sometimes Vi-agglutinins, may develop after T.A.B. inoculation. Phage-types of *Bact. typhosum* have not shown any antigenic differences in animals. Phage is easily propagated and preserved, and only minute amounts are required for a test.

A popular lecture, illustrated by lantern slides, was given in the afternoon by Dr. P. H. MANSON-BAHR entitled "Aberdeen's gift to tropical medicine—Sir Patrick Manson."

". . . At Birmingham station I became a modern Englishman, enthusiastically proud of modern England's science and energy; that station alone is enough to make one proud of being a modern Englishman. Oh, what an idea does that station, with its thousand trains dashing off in all directions, or arriving from all quarters, give of modern English science and energy."—GEORGE BORROW, Wild Wales, 1862.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM D.P.M.

I

WHAT with the advance of scientific and the decay of clinical medicine the only refuge of the patient nowadays seems to be Christian Science. Laboratory workers have certainly come into their own in this generation, and the result has been the coining of the phrase "clinical material." I doubt whether it makes for good medicine to think of people in this light; I fancy it must have been responsible for the experience of rather a weedy youth I know who went into hospital to have a pain in his belly investigated. He was there four days and suffered the following traumata: two barium enemas and several of the ordinary variety; a barium meal; a pyelography; a test-meal, the tube being passed not too cleverly by the nurse; and two or three blood examinations, the blood being collected not too cleverly by the house-surgeon. And then of course there was the psychic trauma of the bill. He went in weedy and came out looking like a weed which has attracted the unfavourable attention of the gardener. I am not saying that the tests were unnecessary; though most of the results were conflicting, they served to clear the ground; but I do suggest that they might have been spread out a little and conducted with more humanity. The distinguished laboratory and radiological workers who had charge of this bit of clinical material might have looked in now and then to see whether the victim was equal to the next assault. Or just to pass the time of day.

* * *

Why is clinical medicine at such a discount today? In many fields the criterion of skill has become, not a capacity to make the patient comfortable, but a capacity to pass examinations—surely an extraordinary standard. Unfortunately it is a standard which has been adopted largely in the public services, where lay committees have no guide to ability other than a string of letters, and no first-hand knowledge of the people they are appointing. It comes about, in these services, that promotion depends upon the number of qualifications, much as promotion for a policeman depends on the number of convictions he secures. Under this system, honest doctors find themselves collecting degrees with the abandon of a boy-scout collecting badges. Any number can play at that game, and before you know where you are, M.R.C.P.s are three a penny. A harmless enough pastime, some say; but the trouble is that a man who is continually working for examinations has less time to be a good, observant, considerate doctor. He is continually hurrying away from his patients to get at his books. Of course if he succeeds in his design this does not matter very much: he is made a superintendent and never practises medicine again. He spends his life wrestling with laundry machinery, drug-bills, lavatory accommodation and air-raid precautions. What a fate for a promising young doctor! Still once he has got to the top he is out of mischief; it is while he is climbing that he is a menace. Fortunately there is always a residue of doctors too wily or too lazy to take the bait. The patients like having them about.

* * *

Visitors to institutions for mentally defective children walk through two wards as a rule before uttering their slogan: "What you need is a lethal chamber." Of late they have been able to vary it with another agreeable formula: "What you need is a well-placed bomb."

There is a working chance that their second suggestion may be put into practice, since mentally defective, unlike physically defective, children will not be evacuated in case of war. It seems there is nowhere to put them. This is bad luck for them, because they are as easily frightened as normal children and rather less easily reassured. The stoical attitude of most people towards the fate of mentally defective people strikes me—nowadays—as odd. At one time I shared their opinion and advocated euthanasia with the best; but that was before I had had much to do with mentally defective patients. Even after a month or two in the wards I was pretty cocksure; but little by little I found where I was wrong. The easy superiority of the eugenist deserted me, for I found that I was dealing, not with regrettable accidents but with people—and uncommonly nice people at that.

After five years of their society—and the time has been spent among low-grade defectives, idiots and imbeciles—I know that if someone presented me with a fine new lethal chamber and authority to use it I should have extreme difficulty in choosing even one victim. On what grounds ought the choice to be made? Mere lack of intelligence seems a dangerous standard. Many high-grade defectives—feeble-minded patients and the more able imbeciles—would not be noticeably deficient if placed among simple or savage people; they would do pretty well. It seems unreasonable to say that if they had been born scions of a race of savages they would be fit to survive, but that having cropped up in a civilised country they merit death.

Moreover it is hard to be sure that the value we set on intelligence is justifiable. Intelligence is all very well in its way; it is a useful and sometimes even an agreeable quality: but it is only one human quality among many; there is nothing sacred about it. Many other qualities have as much, if not more, social value—humanity, candour, reliability, thoroughness, to name a few. Mentally defective patients often score over normal people in just such attributes; most of them are kindly, innocent, easily contented, easily amused and willing to work endlessly at a dull job without losing interest. Of course there are exceptions; there are cross-grained, difficult, hysterical and deceitful patients just as there are normal people with similar defects of character; but on the whole they are good citizens.

The favourite argument for euthanasia, however, is that the mentally defective person cannot earn his keep—he is an economic drag on society and therefore useless. This seems an unbalanced argument, for who is useful otherwise than relatively? Who is indispensable, except to himself? Stella Benson summed up human value when she said: "An un-

natural accident is happening to a noble and unreplaceable cockroach—me!"

The most able of us is no more than a temporary stop-gap; society will get on well enough without us when the time comes. But apart from that, how many people are really as valuable to society as a mentally defective patient contentedly making rugs or shoes or furniture in an institution? How does one assess the social value of a leisured woman living at the expense of a wealthy husband? Or of an impecunious neuropath supported by his friends? Or of an idle young man who spins out his education interminably and never qualifies for a profession? Or of artists indulging their creative instinct gloriously, openly contemptuous of the opinions of society, and anxious only to serve an animistic conception called art? As far as I know the lethal chamber has not been recommended for any of these.

The truth is that when it comes to picking our friends we care very little about either intelligence or usefulness—we pick them for more human qualities, often for the qualities found so commonly among the mentally defective. Probably the reason that so few people number certified mental defectives among their friends is that they have no opportunity of meeting them socially. As far as I can see the only patients who would benefit by euthanasia are those helpless idiots who can do nothing for themselves and who are miserable in addition. There are not a great many of these available.

* * *

This war-today-and-none-tomorrow system under which we are living must have curious effects on the endocrine secretions; some of our keener laboratory workers are probably measuring them by this time. Just as the tide of adrenaline has surged through our blood-stream someone in Europe begins another conversation, and the tide is turned off at the main, giving place to relief tempered by a flat-soda-water feeling; no sooner has normal life recovered its true importance than we are called upon to face another crisis. The pathetic speed with which we make the adjustments suggests the fancy that we ourselves are the victims of some super-laboratory-worker engaged in a nicely graded series of experiments. It is not difficult to picture mankind as a group of protozoa under the microscope; someone introduces a drop of weak acid under the coverslip and we flee from it in an angry tide; then he changes the reaction and we flow back blindly, obeying a simple chemical change.

European politics in the last year have become too fantastic for parody, and the swing of opinion in this country has had its amusing side too. Two years ago most of us believed that war should never again be regarded as an argument; intellectually, perhaps, we believe it still, but we have been gradually cozened by changing circumstances—by an alteration in the reaction of the fluid if you like—into feeling it is the only argument left to us. Psychologists say that to be able to forgo without fuss is the hall-mark of adult behaviour; it is also the usual behaviour of very simple animals like the amœba. After centuries of evolution, then, we can boast that the best of us are prepared to submit to our fate as meekly as our first ancestor. We don't seem to have put in the time very well.

Quarterly Journal of Medicine

THE July issue contains the following papers:—

THE CEREBRAL BLOOD-FLOW IN ARTERIAL HYPERTENSION, ARTERIOSCLEROSIS AND HIGH INTRACRANIAL PRESSURE. By Denis Williams and William G. Lennox (Boston). Arteriovenous oxygen and CO_2 differences (using internal jugular vein blood) were determined in groups of patients with these conditions, and in patients with normal intracranial circulation. With one exception no significant abnormalities were found in any group. This indicates that in arterial hypertension (even in one case with severe congestive cardiac failure), in raised intracranial pressure (even in comatose cases), and in cerebral arteriosclerosis, the cerebral blood-flow remains within normal limits. The exception is the cerebral arteriosclerosis group, in which the mean cerebral blood-flow, though within normal limits, is low, indicating mechanical limitation of the vascular bed.

THE EFFECT OF PITUITARY THYROTROPIC EXTRACT IN SUBJECTS WITH LOW BASAL METABOLIC RATES. By E. P. Sharpey-Schafer and I. Schrire (British Postgraduate Medical School). Intramuscular injection of pituitary thyrotropic extract produced clinical changes, increased creatine excretion, and increased basal metabolic rate in every one of twenty-two normal subjects, and in five subjects with various endocrine disorders. It was without effect in three myxœdematous patients and one cretin; also in three subjects with low basal metabolic rates, but without other myxœdematous features. These three all showed evidence of hypogonadism; one of them was proved by biopsy to have a normal thyroid gland.

THE TREATMENT OF CHRONIC HYPOPARATHYROIDISM. By Ian A. Anderson and Alexander Lyall (Aberdeen). Calcium and phosphorus balance experiments on three cases of postoperative hypoparathyroidism are reported. In all three the serum calcium could be raised to and kept at a normal level by a diet low in phosphorus, supplemented by a large addition of calcium (as calcium lactate). A similar calcium intake, without restriction of phosphorus was without effect. The mechanism of the effect, which is of obvious therapeutic value, is discussed.

THE DIFFERENTIAL DIAGNOSIS OF FORMS OF BASOPHILISM (CUSHING'S SYNDROME), particularly by the Estimation of Urinary Androgens. By A. C. Crooke and R. K. Callow (London Hospital and National Institute for Medical Research). Four cases are described. In two a malignant adrenal cortical tumour was found, after being palpated in one case and demonstrated in the other by radiography after perirenal air-sufflation. The urine of these two gave high values in the colorimetric assay of 17-ketosteroids or in the biological assay of androgens; that of the other two, in whom no adrenal tumour was present, gave low values. These urinary assays are claimed to give valuable help in the differential diagnosis.

THE CAUSATION OF THE LOW BLOOD-SUGAR IN CŒLIAC DISEASE. By Theodore Crawford (Glasgow). The blood-sugar curves following intravenous injection of 0·5 g. glucose per kg. body-weight, in twelve cases of cœliac disease, were similar to those in normal children; eleven of the cases gave low curves after oral administration of glucose. This points to defective absorption from the gut as the explanation of the low blood-sugar levels in this condition. Six of the cases also gave normal blood-sugar curves after intravenous injection of insulin.

RHEUMATIC HEART-DISEASE AS MET WITH IN HOSPITAL PRACTICE IN CEYLON. By P. P. Fernando (Colombo). Post-mortem findings over a period of 3¼ years are compared with statistics from Guy's and St. Mary's Hospitals, London; the incidence and general features of rheumatic carditis are about the same in the Ceylon series as in those from London. A survey of the clinical features of the rheumatic infection, as seen in one group of wards in the same period, shows no important difference (except the absence of nodules in Ceylon) between the disease as seen in Ceylon and the disease as seen in temperate climates.

THE LANCET

LONDON: SATURDAY, SEPTEMBER 2, 1939

A PEACE OF UNDERSTANDING

WE have been witnessing a political degradation. The German people—our cousins in blood, our fellow-workers in science, and often our friends—have been drilled to believe evil of their neighbours. First the Czechs and now the Poles are accused of malign intentions against the Reich, and their evil mounts higher and higher according as the German preparation for their destruction advances. When such accusations are made by individuals psychiatrists call the process "projection." They regard it as a dangerous symptom; while jurists have always held that such behaviour should be handled by the police and with due process of law. Likewise the world today, less inclined than formerly to be lenient to the antisocial tendencies of nations, holds that if a nation goes wrong in this way it should be checked.

The knowledge lately gained of the disorders of the mind may help in the restoration of order in Europe. When a person attributes to another the evil within himself his purpose is not simply to preserve the illusion that he is blameless and peaceable; it is also, unconsciously, to preserve a cherished object or ideal from attack. We must recognise that in the German people today there are forces of devotion, loyalty and passion which rise above the self and demand an allegiance superior to the claims of comfortable living. Unfortunately, high ideals in an individual or nation may be associated with serious antisocial tendencies. We are coming to recognise in our patients the complicated inter-relation of these two elements, and in national affairs we shall find it no less difficult to give full weight to the power of knowledge, for we must first put our own fears and counter-hostility aside. Yet if we want truth and peace and liberty to think we must give ourselves to the task which truth and peace and liberty of thought demand of us.

Nations judge themselves by their war aims; posterity judges them by their manner of offering, making, accepting and keeping the terms of armistice and peace. A brutal and antisocial force is at work in Germany today, destroying the peace of Europe; and, whether we know it or ignore it, we too are at the bar of History. We in England are united as seldom before in a common cause—to stop power being used for private ends. We have that access of power, as for the moment has Germany, which comes from the canalising of action in a single purpose. But its strength will be largely wasted, as was that of the last war, unless we use it rightly. Unless we keep the aim of our struggle and the conditions of peace in full view all the time we shall be like harassed relatives holding down a dangerous patient till from exhaustion he submits—for the moment. As psychiatrists we have given up the use of chains, though not always the use of locks; as peace-holders of Europe we must avoid the notion, too prevalent a quarter-century ago, of crushing Germany out of existence or of hanging the Kaiser. As psychiatrists we know the domestic war of nerves to be the climax of a prolonged inner conflict and disquiet in the patient, and if we are good psychiatrists we shall recognise the harm done by our own mistakes. To deal with the disruptive force of this kind of aggression we need a moral courage to face the evils in our own human nature.

Doctors have little to do in war except to mend the injuries done by aggression, but they may take comfort from the belief that their discoveries can do more than anything else to remove the burden of war. Today such a boast may seem strange; yet now of all times it ought to be made true. For we must not forget—nor let others forget—what we have learnt from clinical work. The physician's power to control disorders of the mind depends on the patient recognising him as an open-minded and human creature who can be trusted to deal with him fairly. Our propaganda will be powerful for peace in proportion as it carries the conviction of our moral capacity to make a good peace. A war of silent hate would be long and destructive of our lives and our own ideals. The will to achieve a lasting peace must include an open-minded willingness to listen to complaints and meet grievances; remembering that the peoples of Europe will have to live as neighbours to the end of time.

MARIHUANA

AN old vice in the new world has in the past three years become something of a sociological problem. Cannabis indica has been indulged in for thousands of years and under the names of hashish or bhang it is still used extensively in the near east and especially Egypt by the so-called criminal classes. In India chronic psychoses due to hashish are extremely common. In the Bombay mental hospitals[1] last year, cannabis indica psychosis accounted for about 12 per cent. of all admissions. Lately the vice has spread among lazy and dissolute adolescents in the U.S.S.R., the plant having been introduced by way of Turkestan and the Caucasus. In Mexico the drug is known as marihuana, a corruption of the Portuguese "maraguango" meaning intoxicant. Its picturesque synonyms in the United States, whither it is smuggled from Mexico, include muggles, reefers, Mary Warner, Indian hay, the weed, and tea. The hemp plant is cultivated for fibre in the mid West and also grows wild throughout the U.S.A. The dried flowering tops are rolled into cigarettes. In New Orleans and in other parts of the States pedlars sell these cigarettes in clubs, cabarets, and restaurants. The younger generation are apparently the chief smokers and even boys and

1. Annual Report on Mental Hospitals in the Bombay Presidency, 1938, Bombay, 4*d*.

girls pay a nickel for two mootas or marihuana cigarettes and hysterical states known as "laughing jags" are not uncommon. Marihuana in all its aspects has recently been described by Prof. R. P. WALTON.[2] His book is the most complete monograph on cannabis indica intoxication and is comparable with MAIER'S[3] study on cocainism, ROUHIER'S[4] on mescalism, and that of TERRY and PELLENS[5] on opium.

Marihuana from the psychiatric point of view appealed frequently to the romanticists of the nineteenth century. DUMAS, GAUTIER, BAUDELAIRE and DE QUINCY, and such Americans as BAYARD and HECTOR FRANCE have given vivid descriptions of the mental changes induced by the drug. Recently BROMBERG[6] has investigated marihuana in New York. His study is based on material seen in his capacity as psychiatrist to the Court of General Sessions and the Bellevue Hospital. He is sceptical as to whether marihuana really causes its addicts to commit rape, suicide, and murder, as the popular press in America allege. He even casts doubts on the drug's habit-forming capacity. Tolerance does not appear to increase, and there are no demonstrable withdrawal symptoms. In 67 cases involving marihuana seen at his court it was found that early use of the drug did not predispose to crime and no single positive piece of evidence showing the relation between marihuana and sexual or violent crimes came to light. Countless people use marihuana without developing any observable mental upset and, as is the case with alcohol, the essential factor in the development of a marihuana psychosis appears to be the personality of the patient.

The marihuana psychosis occurs in two forms, acute intoxication and a more enduring toxic psychosis. Acute intoxication lasts a matter of hours or days. Its features are euphoria often associated with anxiety and apprehension, depersonalisation and upset of time appreciation. Dance-band musicians are said to use marihuana to produce an apparent slowing of the tempo of their music, thus enabling them to play fast passages easily when improvising on a theme. There are feelings of bodily change such as lengthening of the limbs and swelling of the head. Sometimes the confusion is associated with visual illusions and hallucinations. The toxic psychosis lasts for weeks or months and is often superimposed on schizophrenia or some other mental illness. Indeed, it appears that marihuana is merely a trigger which releases a latent insanity.

In the interest which marihuana addiction has aroused in the States credulity appears to have outrun science. The press and stage have exploited it and it even formed the theme of a cinema film, Assassin of Youth.[7] To the enthusiasts who see in marihuana the hand of Satan, BROMBERG'S work provides a healthy corrective. The only final conclusion which he allows himself to draw is that marihuana is a sensual addiction in the service of the hedonistic elements of the personality.

2. Walton, R. P., Marihuana: America's New Drug Problem, London, 1939, pp. 223, 12*s.* 6*d.*
3. Maier, H. W., Der Kokainismus, Leipzig, 1926.
4. Rouhier, A., Le Peyotl, Paris, 1927.
5. Terry, C. E., and Pellens, M., The Opium Problem, New York, 1928.
6. Bromberg, Walter, *J. Amer. med. Ass.* July 1, 1939, p. 4.
7. Produced by Leo J. McCarthy, Hollywood, 1937.

MILITIAMEN AND TUBERCLE

THE death of a militiaman from pulmonary tuberculosis, a few weeks after having been placed in grade 1 by a medical board, raises again the question of the advisability of including radiography of the chest in the routine examination of these young men. This militiaman was re-examined and passed as fit on joining his unit on July 16; on the 29th he was sent to hospital for two days' observation, after an attack of dizziness; he returned to duty but collapsed during drill on Aug. 19, and died almost at once. Post-mortem examination showed extensive cavitation in both lobes of the left lung.

Pulmonary tuberculosis still accounts for about a third of the total deaths of young adults from disease, and the incidence of significant lesions found radiographically in so-called healthy persons is variously reported as from 0·5 to 2·0 per cent. This would mean 1000–4000 out of the 200,000 annual recruits for the militia. In Parliament in June Sir VICTOR WARRENDER[1] said it was beyond the wit of the medical profession to ensure the discovery of latent disabilities before a militiaman is passed into the army, and there can be no doubt that with only physical examination, however carefully carried out, a serious number of cases of early phthisis will be missed. Mass surveys in the United States, France and elsewhere have demonstrated that in this respect routine radiography will give a much higher proportion of accurate diagnoses. Thus, of some 25,000 candidates for employment in the French state railways in the years 1935–37, about 1·2 per cent. were discarded on radiological evidence after being passed as sound on physical examination.

The ascertainment of early cases among militiamen is important enough for the recovery of the patients themselves; but it is doubly important for the sake of those with whom they will come in close contact during their training. The compulsory medical examination of all prospective state employees in France includes screening of the chest and radiography where the screen findings are suggestive. A similar procedure for militiamen would require a large supply of expert radiographers, and would not provide any permanent record, other than a written report, in every recruit's dossier. The cost of a celluloid film for each recruit would be high, and in a full-sized paper radiogram, which is cheaper, a significant amount of detail is lost through the coarse grain of the paper. As suggested in these columns on June 10 (p. 1330), the miniature radiogram, in which a small photograph is taken of the fluorescent-screen image, combines a high standard of accuracy with a cost of less than a penny per recruit. The miniature radiogram can be examined by the expert at leisure, and four such experts would have no difficulty in dealing with 200,000 recruits a year. The method could be applied even to the flood of

recruits in war-time. It is already in use in Germany, largely owing to the technical progress made by R. JANKER. A satisfactory apparatus, of which the cost is not prohibitive, has been described in THE LANCET by DORMER and COLLENDER,[2] and it would be a wise step for the proper authority to make a close study of technique and working details and to select a panel of diagnosticians—in the first instance to cover future groups of new militiamen, but capable of expansion in the light of experience.

1. See *Lancet*, July 1, 1939, p. 49.
2. Dormer, B. A., and Collender, K. G., *Ibid*, 1939, **1**, 1309.

ANNOTATIONS

INDUSTRIAL HYGIENE

THE report[1] of the Chief Inspector of Factories for 1938 is coloured by two unrelated facts or sets of circumstances, one being the operation of the new Factories Act 1937 and the other the state of international tension and consequent rearmament. Mention is made of a greatly increased demand for defence material of all kinds, of great activity in aeroplane construction, of the building of new ordnance factories and munition works, and of the flourishing state of the iron and steel trades. It is pleasing to note that the trading estates established in the Special Areas are developing rapidly. At Team Valley near Gateshead, for instance, the number of occupied factories has risen from 29 to 86 during the year with an increase of 1160 workers. In Renfrewshire and Wales similar improvements are noted. The articles manufactured on these estates are not all of war-like intention and the varied list contains light-metal goods, food-stuffs, motor-car bodies and safety glass. The variety in manufacture replaces to a great extent the employment on heavy industries on which these areas depended so much in the past. Sir Duncan Wilson, the chief inspector, points out that, in welcome contrast to the previous two years, there has been a decrease in the number of reportable accidents, amounting to 7 per cent. for fatalities and to 6 per cent. for all accidents, whereas in the manufacturing industries alone the decreases were 12·5 and 10 per cent. respectively. In the metal-rolling mills the number of accidents fell by as much as 30 per cent., those occurring on power presses by 25 per cent. and those due to transmission machinery by 17 per cent.; on the other hand the number of accidents on building operations has risen by 20 per cent. In spite of the reduction in general accident-rates, which Sir Duncan suggests might have resulted from the safety requirements of the new act, there is still room for further improvement.

The new act has reduced the permissible working hours of women and young persons to 48 per week with a limit of 6 hours overtime in a week and 100 hours in a year—overtime being prohibited for all workers under 16 years of age. Previously it had been possible to work a woman or young person 12 hours a week and 600 hours a year beyond the 48-hour week. The application of the hours-of-employment provisions of the act has caused a good deal of confusion in different industries but some firms have been surprised and at the same time gratified to find that with shorter hours their production has been as good and their expenses have been lower. It is remarkable that employers and employees still have not learned the lesson that long hours of work in many processes bring about an actual reduction of output, a point which the Industrial Health Research Board has made year after year in its annual report.

Under the new act the certifying surgeon becomes examining surgeon, with increase of duties, responsibilities and fees, and the changes seem to be resulting in an increased sense of responsibility and pride in the importance of the work. The innovation of medical-record cards to be filled in by the examining surgeons after their examination of young persons has added to the interest of the work and these records, when collated and analysed, will provide the much-needed information on the general health of young persons in industry.

1. Cmd. 6081. H.M. Stationary Office. Pp. 133. 2s.

PRESCRIPTIONS FOR SULPHANILAMIDE

SINCE the Pharmacy and Poisons Act, 1933, came into operation sulphanilamide, under whatever name it is offered for sale by manufacturers, has been added to schedule 4 of the Act. This schedule contains the names of substances which may be supplied to the public only on a medicine prescription. The addition was recorded in our columns when the notice to this effect was gazetted, but some prescribers occasionally overlook the fact that the prescribing of sulphanilamide is subject to the same legislation as barbiturates. Consequently they are apt not to define precisely the number of times the prescriptions may be dispensed. It is usual in prescribing barbiturates for the prescriber to indicate the total quantity the patient is to receive, but prescriptions for sulphanilamides often bear the simple instruction "To be repeated." While such an instruction is permissible under the regulations, there is the danger that the patient may use the prescription to obtain supplies in excess of those intended by the prescriber. The chemist who dispenses the prescription marked thus is not required to retain it, and it may therefore be taken from one chemist to another. If prescribers would indicate the number of times such prescriptions are to be repeated, dispensers would be relieved of a justifiable anxiety when presented with a much-thumbed prescription for a schedule-four substance.

LEPTOSPIROSIS

WEIL'S disease has lately been much in the professional if not in the public eye; for it was discussed at Amsterdam last year and at Aberdeen last month, as reported in this issue, and is the subject of a bulletin of the Health Organisation of the League of Nations.[1] The disease has also assumed legal importance and has been the basis of a number of actions under the Workmen's Compensation Act. Many industrial concerns are now alive to its risks, and the present publicity must lead to more effective steps being taken to minimise them. The infection is essentially an occupational one and takes different forms in different occupations. The "swamp-fever" of Russia and Germany chiefly affects land-workers after floods. The reservoir of the organism, *Leptospira grippo-typhosa*, is unknown, but field-mice are

1. *Bull. Hlth. Org. L.o.N.*, 1939, **8**, 144.

suspected. The symptoms are gastro-intestinal, jaundice is absent and the mortality is nil. The type due to *L. canicola* has chiefly been reported in the Netherlands, though recently the serum of a Glasgow tripe-dresser agglutinated this strain. The only known reservoir of this type is the dog. The most important type in this country is that due to *L. ictero-hæmorrhagiæ*, the chief carrier of which is the rat. In some localities more than a third of the rats are "healthy" carriers excreting the organism in their urine. Human infection is acquired through the alimentary tract or by contact from contaminated water or other material. It was common on all fronts during the war, and during the last few years it has been found among the fish-workers in Aberdeen, sewer-workers in London and Glasgow, tripe-dressers in Glasgow, coal-miners, and workers in the beet-fields in Ireland, who are probably infected through abrasions of the hands in the same way as are the sugar-cane cutters in Queensland. The classical description of Weil's disease gives a false impression of its course, for some 60 per cent. of cases show no jaundice at all. Many are mis-diagnosed as influenza, and if a patient presents an acute fever of obscure origin with muscular tenderness, conjunctival injection and a neutrophil leucocytosis, the possibility of Weil's disease should be investigated by bacteriological and serological tests, particularly when there has been any risk of infection. Where there is a definite occupational hazard it may be wise to administer antileptospiral serum while awaiting laboratory confirmation.

AGE AND PARITY IN PLACENTA PRÆVIA

FROM an analysis of sixty-nine carefully acquired maternal histories, in which there were seventy-two cases of placenta prævia, Penrose concludes that maternal age and multiparity are both likely to be important factors in the production of this condition.[1] If these seventy-two cases had been randomly distributed amongst all the pregnancies which these women had experienced, then the average age at which placenta prævia occurred would have been 29·10 years. The observed average age was in fact 31·86 years, a difference beyond what is likely to be due to chance. Mothers of 35 years of age or more produced twenty-seven out of the seventy-two cases, whereas they would have been expected to produce only fifteen if age had no effect. The same form of comparison shows a clear tendency for mothers with a high degree of multiparity to be over-represented in the series; the observed mean birth rank was 3·55 and the expected mean only 2·58. Similarly there were twenty-three observed occurrences of placenta prævia at birth orders of four or more against an expectation of only fourteen. Age and parity are, of course, themselves associated, and the number of observations available to Penrose is rather small for the determination of the relative importance of each independent of the other. Using the method of correlation, he finds, however, that multiparity probably has an independent effect though this may be less important than that of maternal age. Further subdivision of the observations shows that the mean maternal age for central placenta prævia was significantly high while for marginal and lateral cases it was not abnormal. This observation is confirmed by a further series of cases collected from the Royal Free Hospital. On the other hand the mean number of pregnancies was almost exactly the same in both central and non-central groups. Finally, the data gave no evidence that the length of time elapsing between the abnormal pregnancy and the pregnancy immediately preceding it was unduly short in comparison with other pregnancy intervals in the families studied. There was also no obvious tendency for the condition to affect the firstborn. Incidental observations show that the mother survived in sixty-seven of the seventy-two cases but the child in only twenty-five instances. Judging from these hospital cases cæsarean section appears to be the most satisfactory form of treatment from the point of view of the child, and scarcely less favourable than version and extraction from the point of view of the mother.

1. Penrose, L. S., *J. Obstet. Gynec.*, August, 1939, p. 645.

ALCOHOL IN AIR FORCES

THE anxiety expressed in other countries about the prevalence of alcoholism among air-pilots may have led to doubts about the state of affairs in this country. During the war of 1914–18 heavy drinking became almost a convention among flying men, and this convention lingered afterwards. It had arisen at a time when the inferiority of our machines compared with those of the enemy was felt to justify an infusion of Dutch courage, but now that its underlying cause has been removed it exists no longer. For junior officers of the Royal Air Force, wine bills are strictly limited; there are non-treating orders in messes, bars are not open for alcoholic drinks in flying training schools until the evening, and drinks may not be consumed in private rooms. To break the first two of these rules is a court-martial offence. In the past few years, too, the mental attitude of officers towards drink has changed. The Service has become a career and permanent commissions are hard to get. Promotion has depended upon examinations, specialisation, linguistic skill and staff-college work, as well as ability at flying and games. Heavy drinking cannot and does not mix with these, and the routine medical examinations serve as a continual check which reveals any incipient physical or emotional disability.

THE TRELOAR MARINE HOSPITAL

Sir Alexander Maclean's noble gift will make it possible to provide the cripples' hospital at Alton with a complete seaside annexe at Sandy Point, Hayling, where 120 children will continue their recovery from poliomyelitis under ideal conditions. Pioneer work has already been done there with the wattle hurdle and the glowing brazier on the sea-beach, but these were insufficient to deal with last year's epidemic of poliomyelitis, when Sir Henry Gauvain was fortunate in getting many of the cases at a stage when orthopædic treatment is most beneficial. After an initial period of entire rest, the patient, still paralysed and immobilised in splints, is transferred to the pool where the splints are removed when the limbs are supported by water. There being no friction, exercise is practically effortless. It was the American experience with such pool treatment that determined the donation; there, skilled technicians enter the pools with the patients and carry out the prescribed movements. In the new pool at Sandy Point the buoyancy of the sea-water may produce results which have not been possible as yet elsewhere. The sea-water pool, 30 ft. by 15 ft. with water at a temperature of 92° F., will have under-water illumination to assist the exactitude of the treatment. A super-saline pool will be used for cases of osteomyelitis with discharging sinuses. A current pool will provide water massage for scoliosis and polio cases. A super-warm pool, with a temperature not less than 100° F., will offer sedative treatment for spastic paraplegia, and air bubbles can be utilised in a modified Hubbard pool.

Acute polio cases will now be admitted direct to Sandy Point hospital and treated in an isolation pavilion which will have a room for cases of respiratory failure; where there is also swallowing difficulty the patient can be placed prone with lowered head and an electrical sucker to remove mucus from the glottis. The big pool room will have folding doors which can be thrown open towards the sea; patients will be transferred from the wards by trolleys and lowered by hydraulic cranes on to floating plinths. After removal from the water they will be dried by a combination of hot air and towel friction and then have treatment by light, radiant heat or massage. Education will be available for all those undergoing long treatment.

LIGHTENING OUR DARKNESS

THE demands of A.R.P. have created a new use for complementary colours. A red light is completely invisible when looked at through blue glass. For complete suppression of the light, it is essential that the tinting should be very precise. A practical cellulose-acetate derivative called Rhodoid has been developed by May and Baker Ltd. It should prove of great value for darkening windows of hospitals and other buildings where curtains would be neither practicable or desirable. Samples of rhodoid have been tested at the Government's building-research station at Watford, and at the Bradford Royal Infirmary. Here the A.R.P. committee fitted one room with lamps covered with pink-tinted rhodoid shades. A similar tinted pale blue covering to the windows made the pale red light from the lamps completely invisible from outside. The material is fixed permanently to the inside of the windows by means of an easily applied adhesive. When there is no danger from an air-raid, windows can be left open in the usual way and so admit ordinary daylight which practically eliminates the blue tint. At night, with all the lights on and no opaque covering across the windows, not a glimmer can be seen from outside. The windows are quite black, as though boarded in. By day or night, if warning of an air-raid is received, all that is necessary in any building equipped in this way is to close the windows and fasten the pink lampshades. Activities can continue inside uninterrupted. The system should be of particular value for operating-theatres where by means of special wiring arrangements illumination can be instantly switched from white to pink as soon as a warning is heard. We understand that a similar system is in operation in parts of St.Thomas's Hospital, where tinted bulbs are used.

CONVULSIONS IN CHILDHOOD

IN his latest contribution to the study of convulsions Peterman[1] of Milwaukee describes his investigation of 1000 cases. Taking the causes in chronological order he finds that birth-injury accounts for 15·5 per cent. The next hazard is the acute infections, and of Peterman's series respiratory infections and infectious diseases, not including meningitis, encephalitis and gastro-enteritis, were responsible for 34 per cent. The pathological basis of these convulsions is not clear. High fever alone may be responsible, and it is recognised that convulsions associated with fever may recur at irregular intervals for the first two or three years of life, but not after that. Between six months and three years the possibility of spasmophilia arises, and 8·9 per cent. of Peterman's cases were put down to rickets. When this age-period is passed idiopathic epilepsy comes to the fore, and accounted for 23·6 per cent. of Peterman's cases. Of the remainder, 12·7 per cent. are listed as miscellaneous, and 5·3 per cent. as "cause not established." Peterman suggests that some of the convulsions included in this last group were due to dural sinus thrombosis following gastro-enteritis, but it is surprising that alimentary disturbances occupy such a small place in his series. What are termed "terminal convulsions" are not included, and this may cut out the type of case in which gastro-enteritis has seemed to play a part. He gives no support to the belief that teething, worms and adhesions of the foreskin cause convulsions.

In treatment Peterman maintains that hot baths or hot packs do more harm than inactivity. As emergency measures he favours cold packs or cool sponges if there is high fever, and a cool hypertonic saline enema, such as a 25–50 per cent. solution of magnesium sulphate. Next in importance Peterman places the prompt administration of chloroform, which he regards as safer than morphine or opium or even chloral. He regards lumbar puncture, if facilities permit, as of great value not only in treatment but also in diagnosis. Every convulsion produces serious injury to the brain and the aim of treatment is to stop the convulsion as soon as possible and prevent recurrences. A point often overlooked is that after a convulsion a child should be treated as in every cranial injury with absolute rest in bed for several days. For recurring convulsions Peterman advocates phenobarbital as the drug of choice, and for idiopathic epilepsy he reiterates his belief in a ketogenic diet. Here he enters controversial ground.

1. Peterman, M. G., *J. Amer. med. Ass.*, July 15, 1939, p. 194.

TRANSFERS DURING DOCTORS' ABSENCE

THE Minister of Health has been asked by the Insurance Acts Committee to arrange for the readmission to the lists of practitioners who are called up for service during peace-time under the Reserve and Auxiliary Forces Act, 1939, of insured persons who transfer during their absence. The Minister has accordingly issued a regulation that comes into force at once by which, on the return of practitioners from service such insured persons will be re-transferred without application or notice on their part. On receipt of a request from the returning practitioner the insurance committee will inform the insured persons of the intended re-transfer and if they do not object within 14 days the re-transfer will be made. Copies of the regulation and an explanatory letter have been sent to all insurance practitioners and the attention of those called up under the act is drawn to the importance of notifying the insurance committee concerned without delay of their intended absence (and the reason) and of their deputising arrangements. The new regulation will apply only to what are known as end-of-quarter transfers; transfers because of permanent removal and those with the consent of the practitioner concerned are specifically excluded.

THIS WEEK'S ISSUE

Difficulties of publication arising out of the international crisis have made it necessary to rearrange the contents of this week's issue of THE LANCET, *and the Proprietors express to subscribers their regret at the omissions required. The journal is being printed at Aylesbury, and urgent communications may be addressed to the Editor at Messrs. Hazell, Watson & Viney's printing works there. But the London office remains open at 7, Adam Street, W.C.2 (Tel. Temple Bar 7228–9).*

SPECIAL ARTICLES

EMERGENCY NOTICES

ISSUED BY THE CENTRAL EMERGENCY COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION

1. In time of war the Central and Local Emergency Committees established by the British Medical Association will be responsible to the Government for the supply of medical personnel for the fighting forces and for the civilian population.

2. The allocation of practitioners for duty at first-aid posts is now complete. The appointment of practitioners to the Civilian Hospital Service, classes A and B, is practically complete, and any member of a hospital staff not liable to call for other duties who is uncertain as to his position and duties in the event of war should immediately communicate with the Group Officer for his area.

3. Demands for medical personnel for the Services will, as hitherto, come from the department or service concerned direct to the Central Emergency Committee, which will allocate a quota of the demand to each local emergency committee, having regard to, inter alia, the movements of the civil population. Practitioners who have intimated their willingness to undertake national work of one kind or another but who have not yet been allocated should wait until they are approached by their local emergency committees.

4. After the outbreak of hostilities any practitioner in an evacuation area who, as a result of evacuation, is rendered unemployed and is willing to undertake work in a reception area should register with the secretary of his local emergency committee and request that his name be added to the reserve list which is being maintained by the Central Emergency Committee at this office.

5. After the outbreak of war and the putting into operation of the official evacuation schemes, local emergency committees in reception areas will estimate the additional requirements in their areas for medical personnel of all kinds and will communicate their needs to this office.

6. There are now in the possession of all local emergency committees in England and Wales supplies of the following three documents:

(1) Memorandum of Ministry of Health explaining procedure for medical certification in connexion with payment of injury allowances in time of war.

(2) A book of first certificates to be used by medical practitioners in certifying war injuries.

(3) A copy of a memorandum of advice by the Registrar-General to medical practitioners on the methods of death certification in respect of civilians killed by enemy action.

Local committees have been requested to distribute a set of these documents to every medical practitioner in their areas if and when a state of war is officially announced or on any earlier intimation from this office.

7. In reference to the certification by medical practitioners in connexion with the payment of injury allowances in time of war, referred to in 6 (1) and 6 (2), medical practitioners should give the necessary certificates to the appropriate injured persons applying to them without charge, whether those persons are insured persons or not. The Association has informed the Government that it will advise the profession to undertake this service in the public interest. Although the great majority of these certificates will be issued by hospital authorities some patients will no doubt apply to their own practitioners for them and every practitioner remaining in private practice should have a book of certificates in his possession. Arrangements for further supplies will be the subject of a further announcement.

8. This paragraph applies only to the following areas:

All English counties, except London and Middlesex, and the following county borough councils: Barrow-in-Furness, Bath, Blackpool, Bournemouth, Brighton, Burton-upon-Trent, Canterbury, Carlisle, Chester, Eastbourne, Exeter, Gloucester, Hastings, Ipswich, Lincoln, Northampton, Oxford, Reading, Southport, Worcester and York.

These are areas to which will be moved numbers of pregnant women from evacuation areas. Their medical officers of health have been asked now to consult with the local emergency committees on the question of the available obstetric personnel. Local emergency committees are asked, after consultation with the medical officer of health, to make any necessary recommendations for allocation, and, if it is agreed that the number of obstetric consultants available in the area is insufficient, *now* to make the appropriate request to the Central Emergency Committee for additional obstetric personnel.

9. The Association has agreed with the Ministry of Health the terms of the financial arrangement for the medical treatment of children evacuated to reception areas under the Government's scheme. In this connexion the following communication has been dispatched to all medical practitioners in reception areas:

"This is an important communication addressed to every medical practitioner in a reception area, that is, in an area to which there will be official evacuation of children under the Government evacuation scheme. Agreement has today (Aug. 27) been reached between the Association and the Ministry of Health as to the financial arrangements for the medical treatment of children transferred to reception areas under the Government scheme. The arrangement applies to each child who is billeted upon an householder, not accompanied by a parent. It does not apply to children accompanied by parents.

"There will be placed at the disposal of each local emergency committee in a reception area a sum of money to meet the cost of the provision of medical attendance. This sum will be calculated at the rate of 10s. a year for each unaccompanied child transferred under the scheme. This money will be disbursed to practitioners undertaking the treatment of children covered by the scheme on a basis devised and approved by the local emergency committee concerned. The amount paid is intended to cover the cost of attendance and the provision of medicines.

"The main purpose of this letter is to inform you of the fact that this financial arrangement has now been approved and that in respect of unaccompanied children transferred under the Government evacuation scheme payment should be sought, not from the patient or the householder, but from the local emergency committee.

"Local committees have today been asked immediately to devise their schemes of distribution and to inform the practitioners of their decisions. If you are called upon to treat any children covered by this arrangement before the local emergency committee has communicated its scheme to you, please record particulars of such treatment, including the name and address of the patient."

Local emergency committees will realise that local schemes of distribution should be determined at once. It is probable that payments will be made at the end of each quarter. The committee may decide to pay on an item of service basis, within the capacity of the pool; it may decide to pay a quarterly capitation per patient seen, whatever the number of items of

service, the capitation fee being calculated by dividing the number of persons treated into the amount available. If it decides to introduce practitioners, through the Central Emergency Committee, to treat *these patients*, their remuneration in respect of this work should be provided from the local pool. In short, the responsibility for providing an adequate service for these unaccompanied children, and for the distribution of the local pool, rests entirely with the local emergency committees in reception areas to which such children are evacuated.

10. The address of the Central Emergency Committee will continue to be this House—unless and until an intimation is given to the contrary.

British Medical Association House,
Tavistock Square, London, W.C.1.

MEDICINE AND THE LAW

Surgical Instrument left in Body

AT an inquest at Weston-super-Mare on Aug. 21 the jury found that a woman aged 66 had died of shock following a severe operation for perforation of the bowel due to the presence of a metal depressor in the abdominal cavity. An X-ray photograph had shown the presence of this piece of metal; an operation had been deemed necessary for its removal. There had been a previous operation on June 8 for removal of a cancerous growth. There seemed no doubt that the depressor had been left inside the patient on that occasion. The first operation had taken place in a private hospital in Bristol. A nurse who was in charge of the operating-theatre at Bristol was unable to remember whether she herself or another nurse who was also present had counted the surgical instruments before or after the operation. In the jury's view there had been negligence, not amounting to criminal negligence, on the part of those in charge of the operating-theatre, inasmuch as there had apparently been no strict supervision of the instruments. The surgeon who had operated on the first occasion was said to be on his way to America. The jury said it did not want the inquest adjourned in order to hear his evidence.

There have been judicial discussions on the question how far the mere presence of a swab, forceps or other instrument in a patient's body after an operation may be said to establish a prima-facie case of negligence against those in charge of the operation. The Latin maxim *res ipsa loquitur*—the thing itself speaks—has sometimes been relied upon. On the other hand an eminent Scottish judge has contemptuously remarked that, if that maxim had not been in Latin, nothing would have been heard of it.

Injection from the Wrong Bottle

An inquest at Cromer last week indicated the inadvertent use of a bottle of morphine instead of a local anæsthetic. The jury, returning a verdict of accidental death, added a rider that it might be suggested to the drug companies that morphine should be issued in distinctive bottles.

The deceased woman, aged 25, suffered from advanced tuberculosis in both lungs and was unable to do any heavy work. She became pregnant and her medical attendant, after taking a second opinion, arranged for her to go into hospital to avoid complications. Unfortunately the child was born quicker than was anticipated. The doctor, arriving ten minutes after the birth, found the patient's condition reasonably good but deemed it advisable that she should enter the hospital where she received treatment. An injection was administered on the Saturday. On the Monday an operation was decided upon and Novocain was to be injected. The sister who had prepared the tray on the Saturday had then been to the cupboard which contained two bottles and had taken the right one. On the Monday the bottle containing the local anæsthetic was not in its place in the cupboard. The sister took the only bottle from the cupboard. The mistake was not discovered until an injection of morphine had been given by mistake. The two bottles were similar in colour and size. The two solutions could not be distinguished in colour when in the syringe used for the injection. The injection of morphine accelerated hypostatic pneumonia to which death was due. It was announced that the management committee of the hospital would take immediate steps to see that the bottles of morphine would be distinctive in size and colour.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

HUMAN GENETICS

THE seventh international genetic congress opened at Edinburgh on Aug. 23. About 560 delegates were present representing 33 countries. Before the formal opening, the delegates spent two days in London and two in Cambridge, where visits and demonstrations had been arranged for them. A special tour then enabled many foreign members to visit, on their way to Edinburgh, such places as Stratford-on-Avon, Chester, and the Lake district. At a plenary session held in the McEwan Hall, Edinburgh, the congress was welcomed by representatives of the City and the University, and Dr. F. A. E. Crew, Buchanan professor of animal genetics at Edinburgh, was elected president. The vast scope of the congress is shown by the fact that the section of human genetics was one of nine, and the programme of this section alone included nearly sixty papers. The international high-tension led to some modifications, and many were the anxieties of those organising the congress. In its somewhat mutilated form the congress was a good one even by absolute standards.

DIPHTHERIA IMMUNISATION IN GLASGOW

The health and education committees of Glasgow town council are drawing up a scheme for the immunisation of school-children against diphtheria. The scheme will be voluntary, requiring the signed consent of parents, and its working will be undertaken by the public-health and school medical staffs with the assistance of health visitors. A notice will be placed in each child-welfare and school clinic giving details of the scheme, and information regarding the incidence of diphtheria and the value of immunisation will also be distributed to parents. The medical officer of health proposes that each child should be given two inoculations with a fortnight's interval between, and inoculation will be carried out at the corporation clinics in various parts of the city.

REFUGEE WOMEN AS MIDWIVES

On the request of the midwives department of the Coördination Committee for Refugees the Greenock corporation has decided to allow six women refugees from Germany, Czecho-Slovakia or Austria to become pupil midwives at the Rankin Hospital. The convener of the public-health committee admitted that there was difficulty in obtaining the services of midwives at present, but he thought there were enough suitable women in this country without calling on foreign refugees. The medical officer of health said, however,

that the services of these women are urgently required, and indeed that the Rankin Hospital may have to close down unless something is done to relieve the situation. After the present batch of pupil midwives have completed training there are no more to come forward. In agreeing to give this permission to the refugee women the corporation decided to ask for a guarantee that they would not remain in the district and compete with nurses in Greenock after completing their training.

CAMPAIGN AGAINST RHEUMATISM

A resolution urging the Government to set up clinics for the treatment of rheumatic diseases throughout the country has been adopted by the insurance committee for the county of Lanarkshire and it is to be sent to the annual conference of the Scottish Association of Insurance Committees at St. Andrews in September. Lanarkshire is said to be suffering severely from a lack of provision for such treatment and even in Glasgow the facilities seem to be insufficient. Lanarkshire has the highest sickness-rate in Scotland, and the committee urges that one of the most effective ways of remedying this state of affairs would be the development of more efficient treatment both for those who are already incapacitated by rheumatism and for those in whom the disease can still be checked in the early stages.

PARIS

(FROM AN OCCASIONAL CORRESPONDENT)

THE NEW CARNET DE SANTE

Monsieur Marc Rucart, the French Minister of Public Health, has recently sponsored the issue of a health passport of which great things are expected. Hitherto, sporadic attempts to put systematically on paper the most important medical features of Frenchmen have been successful enough within their limited spheres and have pointed the way to a more comprehensive scheme on national lines. Every French baby is now entitled to receive at birth, free of charge, a health passport in which are to be entered all the important medical events in his or her life as they occur, from vaccinations and inoculations to the operations of the dentist. In a sense, this passport is to take the place of the more or less defunct family doctor. As the patient enters the consulting-room of a specialist for the first time, it will not be a letter from the family doctor but this passport, presumably kept well up to date, which will provide those clues with which even the most perspicacious specialists cannot always dispense. The identity of the owner of the passport is not betrayed on it by his name, being indicated only by a number. This should be of use if the passport is lost. Further, it provides for the preservation of professional secrecy. The passport should prove useful to the Army Medical Service, but inquisitorial employers in civil life are not entitled to see it. The first part of the passport will record information about heredity, operations, vaccinations, accidents, rate of growth and so on. In short, it will be the medical history of the holder and his or her parents. The second part is intended to serve as a dental-history record. The card is not compulsory, but parents and guardians are urged to endow every child with it, and to ensure that the necessary records are entered in it as promptly as possible. The reception given to this health passport by the French press has, on the whole, been favourable.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE LUNACY LAWS

A MOVEMENT for radical reform in the laws relating to lunacy has shown itself among the administrative authorities of the public mental hospitals in Ireland. The committee of the Grangegorman (Dublin) Mental Hospital—the largest and most important in Ireland—following the lead of the committee of the Sligo Mental Hospital, last week adopted a series of resolutions to be submitted to the Government, recommending several far-reaching reforms, and asking for the appointment of a commission of experts to study the matter.

Among the reforms recommended is an alteration in the laws governing the admission of patients to the public mental hospitals. It is suggested that the present laws practically necessitate that prospective patients should be regarded either as criminals or as paupers in order to secure admission. The result is that relatives are deterred from putting patients under treatment until the disease is far advanced. To remedy this defect the reception and treatment of voluntary patients in the public hospitals should be legalised. At present voluntary patients can only be received in private institutions. The committee also suggest the establishment of separate institutions for separate classes, for example, mental defectives, epileptics, recent cases of insanity and chronic cases. That the time is ripe for such reforms is beyond doubt, and it is a healthy sign that the committee of the mental hospitals recognise the fact.

SWEDEN

(FROM AN OCCASIONAL CORRESPONDENT)

POLIOMYELITIS IN TOWN AND COUNTRY

A FEW weeks ago Dr. Jönsson published a thesis on poliomyelitis, in which he deduced that the disease is just as frequent in urban as in rural communities. Dr. Jönsson has started a controversy whose temperature has reached almost theological heights. Prof. C. A. Kling, of Stockholm, has pointed out that the evidence in support of poliomyelitis as an eminently rural disease is wellnigh overwhelming. In his study of the epidemic in Sweden in 1905, Wickman found that only about 12 per cent. of all the cases occurred in towns. Leegaard came to approximately the same conclusion for Norway between 1904 and 1912. Studying the great Swedish epidemic of 1912–1913, Wernstedt found that the more urban the population, the lower was its morbidity. Prof. Kling himself has come to the same result from his studies of poliomyelitis in Rumania in 1927. A study of conditions in Finland, which Prof. Kling has not yet published, has yielded similar findings. What the orthodox would consider as the Jönsson heresy deals with the behaviour of poliomyelitis in Sweden between 1921 and 1937, and it is suggested that he has gone astray in attaching too much importance to non-paralytic cases of the disease, in many of which the diagnosis may have been mistaken. Prof. Kling, who is in charge of the state bacteriological laboratory in Stockholm, hopes soon to be in a position to issue a report on a prodigious work undertaken by his staff about the behaviour of poliomyelitis in Sweden between 1933 and 1938. To establish a comprehen-

sive epidemiological survey, some 8000 records have been sifted. In attempting to extract valuable information from this enormous and amorphous mass of documentation, Prof. Kling must be haunted by the dread of every thoughtful artist—shall I, in painting in all these trees, end by hiding the wood ?

INDUSTRIAL DISEASES

In the course of only two or three generations the familiar agricultural timber-growing Sweden has become industrialised to a remarkable degree. A sign of the times is to be found in the Lennander lecture delivered this year by Dr. Gerhard Rundberg, who chose modern industrial diseases as his subject. Since 1929, one law after another has been passed in an attempt to protect the worker from the risks of his employment, and even now the legislative net has not succeeded in catching all the industrial fish. Certain infectious conditions are now included within the ambit of industrial diseases, and the statistical returns for the year 1938 include sixty-five cases of scarlet fever, and one case each of diphtheria, infantile paralysis and undulant fever; these qualified the sufferers for compensation under the new law. The predominance of scarlet fever over various other infectious diseases is to be explained by the fact that it has recently run riot in Sweden. Lead still claims some twenty-five victims every year in spite of all precautions. During the 7 years silicosis has been included among the industrial diseases qualifying for compensation it has claimed 143 victims, an average of little more than twenty cases a year. There is approximately the same yearly average from poisoning with benzene and allied chemicals.

To illustrate the suddenness with which new industrial diseases may arise, Dr. Rundberg gave an account of a Swedish metallurgical firm which, at the end of 1938, received a small order from Germany for an iron compound of vanadium. The order being small, and the work on it being considered as provisional, little was spent on precautions against poisoning. But after only a day's work in contact with vanadic acid, several of the workmen developed severe bronchitis with profuse yellowish-green expectoration, as well as general lassitude and irritation of the skin of the face and hands. Naturally enough, the men refused to continue their work. In cases such as this, it is fortunate that the good times at present prevalent in the industrial world encourage employers to incur expenses in the protection of their workmen against industrial risks.

LETTERS TO THE EDITOR

HEREDITY OR ENVIRONMENT ?

SIR,—Your leading article of two weeks ago headed Neurosis or Psychosis ? contains the sentence "This school finds that in the causation of the neuroses and psychoses both heredity and environment play their part; . . ." The common fallacy that heredity and environment can be treated as separate entities thus appears, no doubt unintentionally, to receive editorial sanction. Luxenburger[1] has shown that binovular twins have only a small liability to concordant schizophrenia, but that the likelihood of monovular pairs agreeing is great. With certain reservations and assumptions, we can deduce from his figures that the environment of the developing fœtus in the uterus is not an important factor, that the environment of postnatal life is also of little importance unless a particular hereditary constitution is present, and that the postnatal environment is of very great importance when this susceptible type of constitution is present. Schizophrenia is therefore like the other common diseases. It is meaningless except under special circumstances, as Hogben[2] has pointed out, to discuss whether heredity or environment is the more important, because the answer depends on our personal philosophical outlook. Given a good or perfect environment, heredity is unimportant. From the opposite point of view, in a world where good and bad environments are the rule, heredity does in fact determine the incidence of schizophrenia, as well as most other non-infectious diseases.

Might I follow this chain of thought further and give some other examples of the interaction of heredity and environment ? If a suboptimal amount of vitamin C is present in the diet of guineapigs, some animals will develop scurvy and others won't. By selective breeding it is theoretically possible to isolate strains with varying resistance to C deficiency. Under these conditions, an intelligent, medically minded guineapig, knowing nothing of other types of diet, might be excused for thinking that scurvy was a hereditary disease and that his human masters were justified in following a eugenic policy to eradicate it. Another example can be taken from stock farming. Our cattle are doing well, but we decide to try a new regime. Some of the animals do well on it, some badly. We are faced with two alternatives. Either we breed from the animals who do well and attempt to establish a race which suits the new conditions. Or we decide to go back to the old regime and not venture on a course of selective breeding the consequences of which might in the long run be disastrous.

Parallels to the attitude of mind of our medical guineapig are easy to find in the history of human medicine. The connexion between environment and disease is only obvious when two populations living under different conditions are studied together. When the environment is more or less standardised, heredity or diathesis must inevitably appear as the factor responsible for disease; even as recently as the last two decades, the ideas of the scorbutic diathesis and rickety diathesis have been revived in out-of-the-way communities. In the past fifty years a revolution in our habits of life has occurred. Some of the changes seem inevitable and irreversible. Other changes, especially dietetic ones, are more under our control. It is unfortunate that at this biologically interesting juncture in the history of the human race, prevailing medical fashion is going back to the dark ages and again ascribing ill health to diathesis and heredity. The history of medicine shows that these conceptions, however true, are sterile. They have done little or nothing for the prevention and treatment of disease and it is easy to find examples of how they have actively retarded progress. Today ideas such as the hyperchlorhydric diathesis or the highly strung temperament relegate to the background the study of the effects of diet. It would be ludicrous, if the results were not so sad, that in all the experimental dietetic work which has been carried out, there have been no parallel X-ray and endoscopical observations on the intestines.

1. Luxenburger, H., *Z. indukt. Abstamm.-u. Vererb Lehre.* 1932, **61**, 223.
2. Hogben, L., Nature and Nurture, 1933.

I conclude by re-emphasising that biological theory and twin research (as carried out on the totalitarian scale in Germany) show the universality of this interaction between heredity and environment in disease. And further that medical history warns us that the constitutional factor in disease is difficult to understand and still harder to treat. The environmental factor, on the other hand, may be surprisingly easy to control when it is simplified to essentials.

I am, Sir, yours faithfully,

Oxford, Aug. 19. DENYS JENNINGS.

NEUROSIS OR PSYCHOSIS?

SIR,—Your leading article under this heading stimulates comment of many kinds, but I shall confine myself at present to pointing out the practical implication of the "quantitative" view of the difference between "neuroses" and psychoses. It is simply this, that since neuroses are but mild psychoses (sic) and since psychotherapy is of little use in the latter, so it is of minor importance also in the former. It would be a great pity if the influence of this doubtful (and I think, unscientific) view were to discourage the use of the more recondite forms of psychological treatment by those medical men who have both the aptitude and the necessary type of training.

This is all the more important since it was recently evident at the Mental Hygiene Conference, convened by the National Council for Mental Hygiene, that lay people feel not only that there is a need for this kind of treatment but that the medical profession is failing to supply it. It was I believe largely with this factor in mind, and with a consciousness of the justice of the criticism, that a committee of the B.M.A. recently recommended the recognition of lay psychotherapists. This dubious experiment may yet be forced upon us. While there is yet time, it is essential that those who can influence medical opinion with regard to the nature of neurotic illness should be willing to admit what is well established—that there is a technique of psychotherapy of a sort which does require special gifts, special experience and (except in a few with a special share of the divine afflatus) a prolonged course of training. This needs stressing if we are not to lose the ground which has been won, often by members of the profession whose work has been grudged recognition by its own high priests. We are told that "there is nothing in psychotherapy that any doctor with the right personal qualities and a few fundamental principles to guide him cannot learn for himself." Substitute "surgery" for "psychotherapy" and the quality of this corollary of the quantitative theory becomes evident.

I am, Sir, yours faithfully,

R. D. GILLESPIE.

Chester Terrace, N.W.1, Aug. 22.

"DORMANT" LEAD POISONING

SIR,—I should like whole-heartedly to support the remarks contained in the annotation in your issue of Aug. 19 under this heading. It is indeed time that some of the myths associated with lead poisoning were cleared up. In the past there has been a tendency to accept these cases far too uncritically, and in more recent years the "mobilisation of dormant lead" is frequently called in to explain symptoms without sufficient evidence. It is obvious that anæmia, colic and constipation are common symptoms, and in most cases there is no history of previous lead absorption. If, however, such a history is forthcoming, there is a dangerous tendency to attribute the symptoms to the lead exposure, irrespective of when it occurred or of what degree it reached. It would be interesting to know on what grounds Dr. Gordon Ward, during the war years, ascribed the symptoms in his cases to lead that had been absorbed many years previously.

Over fifteen years ago Aub and his collaborators showed that lead could be mobilised from the bones; and, in fact, most clinicians with a reasonably wide experience of these cases will have at some time precipitated symptoms in a recent case of plumbism by too vigorous "de-leading." But this is a totally different question from the mobilisation of lead after a period of years. As you point out in your annotation, lead soon passes from the trabeculæ, where it is comparatively easily influenced; and having done so, I know of no reliable evidence, either clinical or biochemical, to suggest that it can again easily be brought into the circulation in sufficient quantity to produce severe symptoms. This experience is, I know, similar to that of two leading American industrial physicians who have special opportunities of meeting these cases.

May I enter a plea for a more critical attitude in these cases? It is easy and tempting to accept a seemingly plausible explanation for a puzzling case, but this is one which I feel must be resisted in the absence of adequate proof.

I am, Sir, yours faithfully,

RONALD E. LANE.

Salford Royal Hospital, Salford, Aug. 20.

FIRST-AID FOR EYE INJURIES

SIR,—I was interested in your report on Aug. 19 of the discussion on ophthalmic services to the civilian population in national emergency, which formed a part of the programme of the British Medical Association's section of ophthalmology, recently held in Aberdeen.

It seems from this report that opinions were equally divided for and against the use of cocaine—in favour of it as a local anæsthetic affording relief to persons whose eyes are injured by mustard gas and against it because of its damaging effect on the corneal epithelium. I was not present at the meeting and so I do not know if the advantages of Pantocain as a local anæsthetic were mentioned. Some years ago I abandoned the use of cocaine in all ophthalmic work and have since preferred pantocain in ½ or 1 per cent. solutions. It has no deleterious effect on the corneal epithelium, the regeneration of which is not retarded or interfered with in cases of abrasion and ulceration; the pupil is not dilated, the intra-ocular pressure is not raised and there are no general toxic effects from the use of this drug as a surface anæsthetic. For 40 seconds after instillation a burning sensation is felt and a transitory blepharospasm is evident. The hyperæmia of the conjunctiva induced by pantocain is abolished by a drop of adrenaline if surgical intervention is necessary.

It seems to me that pantocain would be of considerable service in the first-aid treatment of gas casualties in relieving pain and thereby calming those afflicted, and that it could be used without danger by lay persons in first-aid posts and mobile units. Those injured by mustard-gas vapour would thus be made relatively comfortable and be able to open their eyes, within their gas respirators, sufficiently to walk to a hospital or ambulance-transport post.

I am, Sir, yours faithfully,

Harley Street, W.1, Aug. 23. H. B. STALLARD.

MEDICAL STUDENTS IN WAR-TIME

SIR,—As a medical student, may I be allowed to comment on one important omission from the otherwise careful arrangements for our allocations to various hospitals for war services? It is this—that it seems to have been forgotten that in asking students to carry out such duties they are being placed in the unhappy position of appearing invidiously unique, for in the event of war what other fellows of our age will be about in England? If we exclude conscientious objectors, then it may be said that nearly all our contemporaries in all their various employments will have joined up, and we shall surely be pretty well the only ones not in the fighting services.

We have been told and know now that it is our duty to remain behind, to get qualified and then to serve our country, in the services or at home, making use of our professional abilities. Thus, it is not for us to follow the many medical students of 1914, who eagerly joined the fighting forces, and who, by their tragic loss, caused the shortage of medical men in subsequent years of the war.

But the layman does not appreciate all this, and it is shameful that we should be thought "lucky to be out of it." This implication of "justifiable avoidance" of more dangerous belligerent duties abroad, with the risk of verbal "white feathers" being thrown at us, is, to say the least, distasteful.

I suggest that some insignia, equivalent to the T.A. and A.R.P. badges, which could be well understood, should be arranged for us. Many explanations would then be unnecessary, and none would doubt our honour.

I am, Sir, yours faithfully,

L. D. DE LAUNAY,

Sgt. No. 7 Coy. Medical Unit, U.L.O.T.C., O.C.R. The Medical School, King's College Hospital, S.E.5, Aug. 26.

PHYSICAL METHODS IN RHEUMATIC DISEASE

SIR,—It is to be regretted that Dr. H. J. Taylor's letter in your issue of Aug. 19 in no way answers my letter in your issue of the 12th. May I again emphasise that a physicist of repute, Dr. Judd Lewis, has clearly demonstrated the marked difference in the spectrograms of the titanium-alloy arc and the tungsten arc. It is known that the addition of iron or tungsten to the core of a carbon makes a vast difference to the output of ultraviolet irradiation. Similarly the addition of a small quantity of titanium to tungsten makes a very considerable difference to the output of the total radiant energy—including ultraviolet—from the arc.

Surely it is unscientific and wrong to condemn the titanium-alloy arc and also low-intensity treatment when clinical tests have not been carried out.

I am, Sir, yours faithfully,

W. ANNANDALE TROUP.

Wimpole Street, W.1, Aug. 19.

PUBLIC-SCHOOL AND SECONDARY-SCHOOL BOYS

SIR,—I read with great interest Dr. Bathurst Norman's valuable article in your issue of Aug. 19. May I, however, as a matter of record, be permitted to recall the fact that the relation of stem-length (sitting-height) to body-weight, the method of measuring stem-length and the precautions necessary to avoid errors into which some observers had fallen, for which he quotes Dreyer and Hanson (1920), were put forward by me in a communication on the growth of the body in man, published in the *Proceedings of the Royal Society* (1915, **89**, 157). The reference to my paper was given by Dreyer and Hanson in their preliminary article (*Lancet*, 1919, **2**, 227); but, by an unlucky oversight, it was not repeated among the references given in their book "The Assessment of Physical Fitness," and it therefore tends to be overlooked. Dreyer and Hanson's important studies supported my conclusion that the normal weight of the body is related to the stem-length. But the much more extensive data, which they were able to collect, with the aid of the Medical Research Council, led them to make some small numerical change in my formula. Had my lamented friend, the late Prof. Georges Dreyer, been alive, he would have been the first to acknowledge the assistance he obtained from my earlier inquiry.

I have recently entrusted the individual data and the calculations concerned therewith to Dr. E. P. Poulton, of Guy's Hospital, since application made by him to the Royal Society has disclosed the fact that my original manuscript and some valuable tables, which latter were not printed for reasons of economy, are no longer in their possession.

I am, Sir, yours faithfully,

E. W. AINLEY WALKER.

University College, Oxford, Aug. 28.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED AUG. 19, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1260; diphtheria, 742; enteric fever, 48 (53 "expected"); pneumonia (primary or influenzal), 350; puerperal pyrexia, 175; cerebro-spinal fever, 17; poliomyelitis, 25; polio-encephalitis, 3; encephalitis lethargica, 1; dysentery, 39; ophthalmia neonatorum, 100. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Aug. 26 was 2303, which included: Scarlet fever, 503; diphtheria, 480 (carriers, 13); measles, 18; whooping-cough, 552; puerperal fever, 21 mothers (plus 10 babies); encephalitis lethargica, 304; poliomyelitis, 21. At St. Margaret's Hospital there were 18 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from smallpox, 4 (0) from enteric fever, 2 (0) from measles, 1 (0) from scarlet fever, 8 (2) from whooping-cough, 14 (1) from diphtheria, 43 (11) from diarrhœa and enteritis under two years, and 10 (1) from influenza. The figures in parentheses are those for London itself.

Hornsey, Southampton, Stoke-on-Trent and Cardiff each reported a death from typhoid. Fatal cases of diphtheria were scattered over ten great towns, Sunderland reporting 3, Chester and Liverpool each 2. Hull and Birmingham each had 3 deaths from diarrhœa.

The number of stillbirths notified during the week was 245 (corresponding to a rate of 37 per 1000 total births), including 45 in London.

POSTGRADUATE COURSE IN VENEREAL DISEASES.—A course of instruction in modern methods in the diagnosis and treatment of venereal diseases will be given by Lieut.-Colonel E. S. Burke during October, November, and December at the London County Council (Whitechapel) Clinic, Turner Street, E.1. Lectures will be given on Mondays and Thursdays at 2.30 P.M., beginning on Oct. 2, and on Wednesdays at 2 P.M. there will be case demonstrations. Further information was given in the advertisement columns of our last issue.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

BY MEDICUS, M.P.

THE House of Commons has held two special sessions to deal with the danger of war between Germany and Poland—a danger which would automatically involve Great Britain and France because of our treaties with Poland if war broke out. The week between the meetings has been one of what amounts to a general mobilisation of the armed forces and of the civil defence forces. The news of the Soviet-German pact burst like a bombshell on the country and on the world, but left the nerves of the House and of the country undisturbed. This even tension of nerves marked both the meeting of the House of Commons last week and the meeting this week. Last week, with no serious criticism, the bill to give the Government power to make any regulations necessary for the Defence of the Realm passed both Houses of Parliament in one day. This week the Prime Minister's statement on the situation was received with purely formal criticism by the leaders of the Labour and Liberal oppositions. But the leader of Labour urged the Government to set about the evacuation of children and the priority classes from the towns while there was yet a lull.

The Prime Minister's speech of last week—on Aug. 24—has already become a historic document. It was debated by some of the first-class brains in the House, but not all the speeches were first class either in matter or in presentation and the debate towards the end was rather ragged. The significance of the debate was in the division list—427 members of all parties voted to give the Government emergency powers and 4 members voted against it. This balance of members very fairly expresses the feeling of the House and of the country to be finished with the business. This time there must be no compromises, no more Munich settlements. Mothers with sore hearts waiting outside schools while their children are instructed in evacuation methods say it. Workmen building homes or in their workshops say it. . . . Men at their desks . . . Doctors and nurses in hospitals . . .

Let us trust that the resolution of the Government will be equally firm. The gage of battle now is no Czecho-Slovakia but the honour and physical security of Great Britain and all it stands for of fair-minded freedom in life, in thought and in work. So felt the House of Commons on Tuesday, Aug. 29, 1939. The House is to reassemble in a week's time unless emergency before that calls it together again.

MEMORANDA ON CASUALTY TREATMENT

THE Director-General of Emergency Medical Services has prepared a series of memoranda for the information of medical officers of health, group officers and others responsible for civilian casualty organisation. One memo gives some general and more detailed advice on early treatment at first-aid posts. The first-aid worker is warned against attempting more than his training has fitted him for, and is urged to cultivate common sense rather than overconfidence. The technique recommended generally follows that of the manuals.

Another memo deals with the provision of tetanus and gas-gangrene antitoxin. The former is being stored in fifty centres so that it will be immediately available when required. Some authorities have advocated a prophylactic dose much larger than that used so successfully in the last war; the dose advised here is 2 c.cm. of the liquid serum provided, which will represent about 2600 international units. The serum will be supplied in multiple-dose bottles holding 30 or 60 c.cm., which can be used for a week after the bottle has been opened. For treatment tetanus antitoxin will be supplied in sealed ampoules each containing a single dose of 24,000 international units in some 8 c.cm. The arrangements made for the supply of gas-gangrene antitoxin allow for the administration of welch, vibrion-septique or œdematiens antitoxins either separately or combined. Little is known about the dosage of these sera, and that recommended may have to be modified in the light of experience. For prophylaxis the provisional dose advised is 3000 units of welch, 1500 of vibrion septique and 1000 of œdematiens. For treatment a combined injection containing 7500 units of welch, 3750 of vibrion septique and 2500 of œdematiens is recommended, and separate antitoxins will be available for intensive therapy where the causal organism has been identified. Supplies of these sera will be kept in London, Newcastle, Leeds, Manchester and/or Liverpool, Nottingham, Birmingham, Cambridge, Oxford, Bristol and Cardiff.

It is proposed to provide special centres where certain types of disability can be collected and treated by a specialist staff. In the early stages of a war, however, while the switch-over from the central organisation of peace-time to a decentralised organisation is taking place, systematic sorting of cases is likely to be impracticable. No attempt will therefore be made to segregate cases in special institutions during the first few days; in this period advance base hospitals will have to be prepared to treat any type of injury. The need for segregation in a special institution is perhaps most urgent in those suffering from neuroses uncomplicated by injury, and an effort will be made to provide special treatment from the outset for such patients who are not fit to go home. As regards first-aid, in simply frightened and emotional cases reassurance combined with an appeal to personal and patriotic pride and a large dose of bromide is expected to be sufficient. When confusion, excitement, loss of memory or disorientation are the chief symptoms, rest and warmth, hot drinks with plenty of sugar, and either bromide or phenobarbital or, where there is much restlessness, an injection of morphia or sodium phenobarbitone and hyoscine are advised. When hysterical symptoms predominate medical officers of first-aid posts are urged to attempt to remove them at once by suggestion. The main aim in all but the most severe neurotic cases will, however, be to send the patient home as soon as possible.

". . . It has come to be my feeling that many of the wound infections which we see are not due to the organisms which get into the wound at the time of the injury, but to bacteria which are introduced during efforts at first aid. Copious hemorrhage, anxious relatives and friends, insistent demands for immediate treatment, often lead the physician or first-aid man to do things which cause irreparable damage."—MICHAEL L. MASON, *Surg. Gynec. Obstet.* August, 1939, p. 113.

OBITUARY

LEONARD WILLIAMS

M.D. GLASG.

THE genus homo, said Leonard Williams in his Cavendish lecture in 1927, inherits from his simian ancestors a certain playful devilry of spirit. Certainly some such spirit permeated his own life and was responsible for the pungency and deliberate challenge of his writings and for his occasional conflicts with accepted orders. The general reader will remember him chiefly for his terse and much-quoted comments on modern habits of diet and hygiene and for his little books on minor maladies. He died in London on Aug. 20 at the age of 77.

Leonard Llewelyn Bulkeley Williams was by birth, as by name, physiognomy and temperament, a Welshman. He was the youngest son of David Williams, M.P., of Dendraeth Castle, Merionethshire, and was educated at Marlborough, Glasgow University and St. Thomas's Hospital. He qualified in 1886, and after studying in Germany and France went into practice at Sidmouth. About 1900 he migrated to London as a consultant physician, and there he interested himself in balneology, editing the *Journal of Balneology and Climatology*, and began to write extensively on the endocrine, dietetic and habitual factors that influence general health. He proved himself a skilful writer of entertaining prose with clear-cut and often individual views. He supported the Arbuthnot Lane school in blaming habitual constipation for many of the "civilised" diseases and was an enthusiastic advocate of the natural rather than the commercially prepared foods. Premature senescence he attributed largely to gluttony and crude cookery ("cookery is too often penury masquerading as magnificence"), and for a long life he prescribed hard work, moderation in diet punctuated by fasting, and plenty of fresh air. Obesity was his bête noire and he particularly condemned pressing meat extracts and the like in acute illness. "In comparison with the ordinary British invalid," he said, "the forcibly-fed Strasbourg goose is an ascetic."

In 1915 Dr. Leonard Williams took over the editorship of the *Medical Press and Circular* when Walsh retired, and during the war years he contributed a weekly paragraph, always witty and often disrespectful, over the apt pseudonym "Sinapis." He was physician to the French Hospital, the Metropolitan Hospital and the Miller Hospital, Greenwich. Since the war, apart from a multitude of short articles and papers, lectures and addresses—for he was as facile a speaker as a writer—he produced a succession of editions of his "Minor Maladies" and wrote "The Science and Art of Living," "Middle Age and Old Age," "Obesity," and "Growing Old Gracefully." Though his views were not always generally accepted, he practised them himself with as much vigour as he preached them to his patients.

A friend of forty years' standing writes: "Leonard Williams was a great admirer of France, and one of the most useful things he accomplished was a better mutual understanding between French and English medical men. A connoisseur of beautiful things, a witty conversationalist, genial among friends, with an appearance which grew increasingly striking with the years—it may be wondered why with all these gifts he did not achieve a still higher position in the profession. I think the main reason was that he allowed his enthusiasms to outstrip his judgment. Once seized with an idea he was apt to carry it to extremes. This was particularly obvious in his views on diet. Moreover he had a decided taste for controversy and was a bonny fighter. Now he is at peace with all the world, and his friends will forget his faults of judgment, remembering with affection his charming companionship."

WILLIAM CARSON

M.D. BELF., M.R.C.O.G.

Dr. William Carson died on Aug. 13 in his fortieth year after a long and painful illness. He was a young man of outstanding ability and great promise. After an early struggle which would have daunted many a lesser spirit, he graduated at Queen's University, Belfast, with honours in 1922. After serving as a resident in the Maternity Hospital, Belfast, he held a similar appointment in the Soho Square Hospital for Women in London. Later he was elected to the staff of the Samaritan Hospital, Belfast, and the Belfast Union Infirmary.

His prime characteristics were his dynamic enthusiasm and an unflagging fund of good humour. He was a versatile and resourceful surgeon, with a passion for accurate technique and a deep regard for the anatomical and physiological truths. As a teacher his talents were obvious. He was friendly and approachable and had a sympathetic appreciation of the student's difficulties.

Carson possessed an original and inventive mind, and for years he was fascinated by the problems of carcinogenesis. The specific effects of abortus infection on animal chorionic tissue suggested to him the possibility that they might be of use in destroying malignant tissues in man. While studying the effects of these organisms on patients with cancer, he found his work hampered by the solid immunity which developed in all cases. He decided that a normal control was essential and, in spite of the protests of his colleagues, he made himself the subject of further experiments. These resulted in a violent and devastating porcine abortus septicæmia which raged for many weeks and permanently impaired his health. He showed great fortitude and cheerfulness in the face of physical suffering.

Since 1936 London hospitals have joined to hold combined collections on three days of the year. The general hospitals made their collection in inner and outer London during May. On Tuesday, Oct. 10, the special hospitals will hold their flag day. Those who wish to help should get in touch with the London Hospitals Street Collections Central Committee, 36, Kingsway, London, W.C.2.

UNIVERSITY OF LONDON.—If a state of national emergency is declared no examinations will be held at the university till further notice.

Notes, Comments and Abstracts

LIMITATION OF NUMBER OF PRACTICES

THE enterprising young man who builds up practices, one after the other, in order to sell them and move on is criticised by a correspondent in *Concours Médical* of June 4. He tells the story of a practitioner who set up in a district where hitherto there had been room for only one doctor, and in six years secured a large proportion of the patients. He then sold his practice to the highest bidder, settled down 40 kilometres away, and repeated the process. The next step was to settle in a large town as a supervisor of his fellow-practitioners working under the national health-insurance scheme. Being now a capitalist, through the ruin of two of his colleagues, he was in a position to live happily ever after, his income from investments supplemented by his government salary. The *Concours Médical* correspondent thinks such behaviour could be frustrated if a limit were put on the number of practices. Already, it appears, French notaries must step into each others' shoes instead of making a new pair. This system, it is suggested, would also be advantageous for the practitioner's widow; for at present she is liable to find the sale value of her husband's practice dwindling rapidly within a few days of his death, because a "squatter" has been free to jump the claim.

FOR THE AMATEUR DOCTOR

WHETHER the layman is in fact more helped than alarmed by his medical reading is a moot point. As long ago as 1907 the faculty of the Harvard medical school formed the opinion that "health-consciousness" had reached a stage which demanded that something should be done to satisfy public curiosity. A course of free and authoritative lectures on Sunday afternoons was inaugurated and these have since continued, almost without interruption. Their aim has been "to clarify, explain and interpret recent developments in various fields of medicine and research, to warn of unsuspected dangers, and to stress the necessity of seeking sources of skilled advice," as apposed to procrastination or quackery. The volume before us ("Health at Fifty," edited by William H. Robey. London: Humphrey Milford, Oxford University Press. 1939. Pp. 299. 12*s.* 6*d.*) comprises a dozen of the more recent lectures, dealing with heart disease, high and low blood-pressure, underweight and overweight, the cancer problem, rheumatism, menstrual disorders, vitamins, care of the eyes, hormones, the family medicine-chest, social stress and mental health, and old age. The manner of presentation is honest and accurate. There might be less anxiety about the activities of the amateur doctor if one could be sure that his information was derived from sources as reliable as this.

Vacancies

*St. Paul's Hosp. for Urological and Skin Diseases, Endell St., W.C.*2.—Hon. Anæsthetist.
*Albert Dock Hosp., Alnwick Road, E.*16.—Second Res. M.O., at rate of £110.
Chester Royal Infirmary.—H.S. to ear, nose, and throat, and gynæcological depts., £150.
*Princess Louise Kensington Hosp. for Women, St. Quintin Avenue, N. Kensington, W.*10.—H.P. and H.S., each at rate of £120.
*Hospital for Sick Children, Gt. Ormond St., W.C.*1—H.P. and H.S., each at rate of £50.
*Bolingbroke Hospital, Wandsworth Common, S.W.*11.—R.S.O., £200. Also H.P. and Cas. O., each at rate of £120.
Wrexham and East Denbighshire War Memorial Hospital.—R.H.S., at rate of £150.
Lancaster Royal Infirmary.—2nd H.S., at rate of £175
Mansfield and District General Hosp.—H.S., at rate of £150.
Northampton General Hosp.—H.S., at rate of £150.
*Nelson Hosp., Merton, S.W.*20.—Res. H.S., at rate of £150.
*Salvation Army Mothers' Hosp., Lower Clapton Road, E.*5.—Jun. Res. M.O., at rate of £80.
Tottenham Borough.—Temporary Asst. M.O.H. (A.R.P.), £550.
Manchester Withington Hosp.—Asst. to Res. Obstet. Officer, at rate of £250. Also Res. Asst. M.O., at rate of £200.
*East End Maternity Hosp., 396 Commercial Road, E.*1.—R.M.O., at rate of £150.

Medical Diary

Sept. 4 *to Sept.* 9

UNIVERSITY OF GLASGOW.
TUESDAY.—4.30 P.M. (Tennent Memorial Building, 38, Church Street), Prof. A. J. Ballantyne: Problems of Vision in Aviation.

EDINBURGH ROYAL INFIRMARY.
THURSDAY.—5 P.M., Dr. James Slater: Physical Education in the University of Edinburgh. (Honyman Gillespie lecture.)

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1.
MONDAY to SATURDAY. WEST END HOSPITAL FOR NERVOUS DISEASES, Regent's Park, Mon. and Fri., 8 P.M., lecture-demonstrations in neurological surgery for F.R.C.S. (final) candidates.—BROMPTON HOSPITAL, S.W.3, Tues. and Wed., 5.15 P.M., course in chest diseases, for M.R.C.P. candidates. MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1, Mon., Wed., and Fri., 5.15 P.M., course in physiology for primary F.R.C.S. candidates.—ROYAL CHEST HOSPITAL, City Road, E.C.1, 8 P.M., lecture-demonstrations in chest and heart diseases. (Open to non-members.)—ST. MARY'S HOSPITAL, Paddington, W.2, Tues. and Thurs., 8 P.M., clinical and pathological M.R.C.P. course.

Births, Marriages and Deaths

BIRTHS

BALL.—On Aug. 24, at Barton-on-Sea, the wife of Dr. Harold C. J. Ball—a daughter.
BEALL.—On Aug. 26, at Chatham, Ontario, the wife of Dr. Geoffrey Beall—a son.
CARNEGIE BROWN.—On Aug. 21, at Wool, Dorset, the wife of Dr. G. Carnegie Brown—a son.
CHEVERTON.—On Aug. 23, at Belize, British Honduras, the wife of Dr. L. Cheverton—a daughter.
COFFEY.—On Aug. 18, at Muswell Hill, N.10, the wife of Dr. W. J. Coffey—a daughter.
GOOD.—On Aug. 25, the wife of Dr. Michael S. Good, of Aylesbury—a son.
HERTZOG.—On Aug. 21, at Ramsey, Huntingdon, the wife of Dr. Willem Hertzog—a son.
JACKSON.—On Aug. 28, to Dr. Margaret Jackson (née Hadley), the wife of Dr. L. N. Jackson, of Crediton, Devon—a son.
KING LEWIS.—On Aug. 25, at Bromyard, Herefordshire, the wife of Dr. P. C. King Lewis—twins, a son and a daughter.
LAURENT.—On Aug. 23, at Putney, the wife of Dr. A. M. P. Laurent—a son.
REID.—On Aug. 22, the wife of Dr. A. Reid, of Clare, Suffolk—a son.
WILLIAMS.—On Aug. 23, at Southsea, the wife of Surgeon Commander J. V. Williams, R.N.—a son.

MARRIAGES

ROWORTH—READE.—On Aug. 21, at Woodham Church, Charles Guy Roworth, M.D., to Christine Sylvia Reade.

DEATHS

COCKBURN SMITH.—On Aug. 22, at Newton Abbot, George Cockburn Smith, M.D. Brussels, M.R.C.S., aged 92.
FLEMMING.—On Aug. 25, Arthur Launcelot Flemming, M.D. Brist., of Clifton, Bristol.
HAYES.—On Aug. 26, at Carr Bridge, James Hayes, M.R.C.S., of Tunbridge Wells, aged 83.
KOCH.—On Aug. 28, Wilfred Vincent Miller Koch, M.D. Edin., of Bath, late of Hong-Kong.
STAFFORD.—On Aug. 18, at Nottingham, William Stafford, M.B. Glasg.
THOMPSON.—On Aug. 24, at Paignton, John Thompson, F.R.C.S.

Appointments

WRIGHT, FRANCES T., M.B.Manc., assistant medical officer at the outpatient department of the Royal Manchester Children's Hospital.

Medical News

University of Cambridge

Dr. Peter Kerley has been appointed an examiner for the diploma of medical radiology and electrology (part II) in place of Dr. Russell Reynolds, who has resigned.

Titles of degrees were conferred on the following members of Girton and Newnham Colleges during July:

A. G. Gardham, M.B.; W. F. Holman, M.B., B.Chir; R. M. Howitt, M.B., B.Chir.; A. M. Lewis, M.B., B.Chir.; M. Savory, M.B., B.Chir.; and M. J. Scott, M.B., B.Chir.